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REPORT OF REFERENCE COMMITTEE ON CONSIDERATION OF THE NATIONAL HEALTH PROGRAM

(Adopted at Special Session of House of Delegates, A. M. A., Chicago, September 17, 1938)

Since it is evident that the physicians of this nation, as represented by the members of this House of Delegates convened in Special Session, favor definite and decisive action now, your committee submits the following for your approval:

1. Under Recommendation I on Expansion of Public Health Services: (1) Your committee recommends the establishment of a federal department of health with a secretary who shall be a doctor of medicine and a member of the President's cabinet. (2) The general principles outlined by the Technical Committee for the expansion of public health and maternal and child health services are approved and the American Medical Association definitely seeks to cooperate in developing efficient and economical ways and means of putting into effect this recommendation. (3) Any expenditure made for the expansion of public health and maternal and child health services should not include the treatment of disease except in so far as this cannot be successfully accomplished through the private practitioner.

2. Under Recommendation II on Expansion of Hospital Facilities: Your committee favors the expansion of general hospital facilities where need exists. The hospital situation would indicate that there is at present greater need for the use of existing hospital facilities than for additional hospitals.

Your committee heartily recommends the approval of the recommendation of the technical committee stressing the use of existing hospital facilities. The stability and efficiency of many existing church and voluntary hospitals could be assured by the payment to them of the costs of the necessary hospitalization of the medically indigent.

3. Under Recommendation III on Medical Care for the Medically Needy: Your committee advocate recognition of the principle that the complete medical care of the indigent is a responsibility of the community, medical and allied professions, and that such care should be organized by local governmental units and supported by tax funds.

Since the indigent now constitute a large group in the population, your committee recognizes that the necessity for state aid for medical care may arise in poorer communities and the federal government may need to provide funds when the state is unable to meet these emergencies.

Reports of the Bureau of the Census, of the U. S. Public Health Service and of life insurance companies show that great progress has been made in the United States in the reduction of morbidity and mortality among all classes of people. This reflects the good quality of medical care now provided. Your committee wishes to see continued and improved the methods and practices which have brought us to this present high plane.

Your committee wishes to see established well coordinated programs in the various states in the nation for improvement of food, housing and the other environmental conditions which have

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the greatest influence on the health of our citizens. Your committee wishes also to see established a definite and far-reaching public health program for the education and information of all the people in order that they make take advantage of the present medical service available in this country.

In the face of the vanishing support of philanthropy, the medical profession as a whole will welcome the appropriation of funds to provide medical care for the medically needy, provided first, that the public welfare administrative procedures are simplified and coordinated; and second, that the provision of medical services is arranged by responsible local public officials in cooperation with the local medical profession and its allied groups.

Your committee feels that in each state a system should be developed to meet the recommendation of the National Health Conference in conformity with its suggestion that "The role of the federal government should be principally that of giving financial and technical aid to the states in their development of sound programs through procedures largely of their own choice."

4. Under Recommendation IV on a General Program of Medical Care: Your committee approves the principle of hospital service insurance which is being widely adopted throughout the country. It is capable of great expansion along sound lines, and your committee particularly recommends it as a community project. Experience in the operation of hospital service insurance or group hospitalization plans has demonstrated that these plans should confine themselves to provision of hospital facilities and should not include any type of medical care.

Your committee recognizes that health needs and means to supply such needs vary throughout the United States. Studies indicate that health needs are not identical in different localities but that they usually depend on local conditions and therefore are primarily local problems. Your committee therefore encourages county or district medical societies, with the approval of the state medical society of which each is a component part, to develop appropriate means to meet their local requirements.

In addition to insurance for hospitalization we believe it is practicable to develop cash indemnity insurance plans to cover, in whole or in part, the costs of emergency or prolonged illness. Agencies set up to provide such insurance should comply with state statutes and regulations to insure their soundness and financial responsibility and have the approval of the county and state medical societies under which they operate.

Your committee is not willing to foster any system of compulsory health insurance. Your committee is convinced that it is a complicated, bureaucratic system which has no place in a democratic state. It would undoubtedly set up a far-reaching tax system with great increase in the cost of government. That it would lend itself to political control and manipulation there is no doubt.

Your committee recognizes the soundness of the principles of Workmen's Compensation laws and recommends the expansion of such legislation to provide for meeting the costs of illness sustained as a result of employment in industry.

Your committee repeats its conviction that voluntary indemnity insurance may assist many income groups to finance their sickness costs without sudsidy. Further development of group hospitalization and establishment of insurance plans on the indemnity principle to cover the cost of illness will assist in solution of these problems.

5. Under Recommendation V on Insurance Against Loss of Wages During Sickness: In essence the recommendation deals with compensation of loss of wages during sickness. Your committee unreservedly endorses this principle as it has distinct influence toward recovery and tends to reduce permanent disability. It is, however, in the interest of good medical care that the attending physician be relieved of the duty of certification of illness and of recovery, which function should be performed by a qualified medical employee of the disbursing agency.

6. To facilitate the accomplishment of these objectives, your committee recommends that a committee of not more than seven physicians representative of the practicing profession under the chairmanship of Dr. Irvin Abell, President of the American Medical Association, be appointed by the Speaker to confer and consult with the proper federal representatives relative to the proposed National Health Program.

THE INCIDENCE AND IMPORTANCE OF HUMAN INTESTINAL PARASITES IN TIDEWATER VIRGINIA.*

WALTER B. MARTIN, M.D.,
Norfolk, Virginia.

In presenting certain figures bearing upon the incidence of various intestinal parasites in man in the Tidewater section of Virginia and North Carolina, it is hoped that more general recognition of their importance may be obtained and that interest in parasitic infection as the cause of a rather varied symptomatology may be stimulated.

This report is based upon the findings in the stools of 9,663 consecutive cases that have undergone general diagnostic study in my office from September, 1920, to March, 1938. In relatively few of these cases does the nature of the complaint, the history, or the physical examination point directly to the probable presence of parasites. This possibility, however, was often suggested by certain symptoms, such as abdominal pain and diarrhœa, or by an increased percentage of eosinophils in the blood. These cases have not been selected, but the findings are the result of routine examination of the stools of patients coming in for general examination. This material represents a fairly good cross-section of the population encountered in private practice. Clinic material, due to the social and economic status of such patients, would probably show a higher percentage of infestation.

The larger proprotion of these patients have lived in urban surroundings. A smaller number came from small towns and rural areas. The total number of individuals found infested with some form of intestinal parasite is 356.

The method of Bass is used in searching for ova. Specimens are brought to the office by each patient. If there is any reason to suspect the presence of amœba a warm specimen is collected in the office by means of the proctoscope if necessary.

The specimen is made fluid by addition of water, strained through gauze, and centrifuged at low speed for one minute to throw down any ova that may be present. The supernatant fluid, containing vegetable debris, is poured off, water added and the specimen again centrifuged. This process is repeated until the supernatant fluid is practically water clear. In searching for flagellates, a bit of the specimen emulsified in a drop of water on a slide, or a bit of the mucous or fluid specimen in cases of active diarrhœa, is sufficient.

The classification of the parasites in the order of their frequency is as follows:

Total cases examined	9,663
Total number infested	356
Giardia intestinalis	114
Trichomonas intestinalis	82
Necator americanus	48
Strongyloides stercoralis	35
Trichuris trichiura	27
Amoeba histolytica	13
Ascaris lumbricoides	11
Chilomastix mesnili	10
Taenia nana	7
Amoeba coli	4
Oxyuris vermicularis	3
Dibothriocephalus latus	1
Ancylostoma duodenale	1

This shows a percentage of infestation of 3.68, a matter certainly worthy of comment.

In most instances only one examination of the stool was made. It seems probable that repeated examination would reveal a still higher percentage.

The age of these patients varied from four to seventy-three. Only 12 per cent of them were under twenty years of age, and only 3 per cent under ten years.

AGE DISTRIBUTION

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	Total
No. of Cases	10	29	60	104	74	44	10	4	335
Per cent	3	9	18	31	22	13	3	1	

Male 160 Per cent 48
Female 175 Per cent 52

While the possibility of intestinal parasites is often considered in children, we have been prone not to consider this possiblity in adults. The distribution as to sex is nearly equal. In this group 48 per cent are in males and 52 per cent in females.

The two parasites most frequently found belong

*Read before the Section on Medicine at the fifteenth annual meeting of the Virginia Academy of Science, at Blacksburg, Va., May 6, 1938.

to the flagellate group; that is, Giardia intestinalis and Trichomonas intestinalis. There has been considerable difference of opinion as to the pathogenicity of the members of the flagellate group. I believe, however, that a comparison of the clinical symptoms of persons infested with flagellates with those in which hookworm or Strongyloides are found will show as high a pathological index in the flagellate group as in the others.

There seems to be little doubt that many individuals harboring various parasites are apparently unharmed by their presence, but in other instances the parasite is responsible for severe and varied symptoms.

The association of an increase in the eosinophils of the blood with the presence of parasites in the intestine has long been noted. It is not an invariable accompaniment, however. The percentage found in these cases varied from none to 46.4 per cent. The following table details the information in 310 cases.

		Eosinophils	*Per cent of Cases*	*Highest per cent*	*Average per cent*
	No. Cases	*Over 2%*	*Over 2%*	*Eosinophils*	*Eosinophils*
Giardia intestinalis	102	33	32	13	1.8
Trichomonas intestinalis	76	22	29	5	1.5
Necator americanus	42	26	62	20.5	5.5
Strongyloides stercoralis	28	19	68	45	8.6
Trichuris trichiura	21	8	38	14.5	2.5
Amoeba histolytica	12	5	42	8.0	2.6
Ascaris lumbricoides	11	5	45	6.5	2.7
Chilomastix mesnili	10	4	40	4.5	1.8
Taenia nana	8	4	50	4.5	2.2
Total	310	126	41	45	

It is to be noted that there is a wide range in the response of the eosinophils in the blood to the presence of intestinal parasites, but that in only 41 per cent on the average are the eosinophils increased to over 2 per cent. The finding of a normal number of eosinophils in the blood smear should not deter one from looking for parasites, though an increase in these cells certainly suggests the possibility of their presence.

Anæmia of a moderately severe grade has been found in a considerable number of cases. A hemoglobin percentage as low as thirty has been encountered when there was no other ascertainable cause for the anæmia. In most of the cases anæmia of a severe grade was not found. The following table shows the percentage of cases having hemoglobin below 85 per cent.

Giardia intestinalis	40%
Trichomonas intestinalis	35%
Necator americanus	20%
Strongyloides stercoralis	50%
Trichuris trichiura	33%
Amoeba histolytica	22%
Ascaris lumbricoides	50%
Chilomastix mesnili	29%
Taenia nana	75%

The gastric contents have been examined in ninety cases. Ten of these showed a definite hyperacidity; twenty a hypoacidity, and six a complete anacidity. Thirty-six cases, or forty per cent, showed definite deviation from normal in the acidity of the gastric contents.

An analysis of the occurrence of the various symptoms, such as headache, nausea, abdominal pain, diarrhœa, weakness, and flatulence, reveals the presence of one or more of these symptoms in the majority of cases. The presence of parasites has not been the sole cause of these symptoms in all cases, but in many instances no other causative factor was found. The distribution of these various complaints

VARIATION IN GASTRIC ACIDITY—90 CASES

	Hyperacidity	*Normal Acidity*	*Hypoacidity*	*Anacidity*	*Total Cases*
No. of Cases	10	54	20	6	90
Average Per Cent Acidity	59	32	13	0	
Per Cent of Total	11.1	60	22.3	6.6	40%

according to the particular parasite infesting the individual is shown in the following tables:

			Headache	*Nausea*	*Abdominal Pain*	*Diarrhoea*	*Flatulence*	*Weakness*	*Abdom. Sympt. One or More*
Giardia	No. of Cases	92	44	30	35	13	26	40	71
	Per Cent		48	33	38	14	28	43	77
Trichomonas	No. of Cases	57	27	13	32	13	28	25	52
	Per Cent		47	23	56	23	44	50	91
Necator amer.	No. of Cases	40	14	9	18	1	22	13	32
	Per Cent		35	22	45	2	55	32	80
Strongyloides	No. of Cases	23	8	10	14	1	10	9	17
	Per Cent		35	43	61	4	43	39	75
Total	No. of Cases	212	93	62	99	28	86	87	172
	Per Cent		44	29	47	13	41	41	81

It can be seen from these figures that patients infested with the flagellates have as wide a range and as great a frequency of symptoms as those with hookworm or Strongyloides. The comparison is made with these two parasites as they are generally accepted as being of pathological importance when found in the human intestinal canal.

No effort is made to draw any sweeping conclusions from the above data. It is presented as a factual record of what has been found in a series of cases carefully studied.

339 Boush Street.

UNDESIRABLE EFFECTS FOLLOWING THE USE OF SULFANILAMIDE.

CHAS. C. HASKELL, M.D.,
Richmond, Virginia.

The Trefouels, Nitti, and Bovet[52] presented evidence that the rather complex compounds used by Domagk[16] and in the earlier clinical investigations owe their activity to a relatively simple substance, p-amino-benzene-sulfonamide, or sulfanilamide. This view has been supported by other workers[9, 10, 19, 29] and seems to be generally accepted in America; therefore, in the discussion which follows the name sulfanilamide will be used to cover the whole class of these preparations, except where it seems desirable to be more specific.

With the better controlled animal experimentation and clinical investigation initiated by Colebrook and Kenny[14] in England and by Long and Bliss[29] in this country, the belief at first gained acceptance that sulfanilamide was of value chiefly or exclusively in the treatment of infections by hemolytic streptococci. Experience during the past two years has demonstrated, however, that the drug is almost equally valuable in the therapy of meningococcal and gonococcal infections; and there is considerable suggestive evidence that its therapeutic action may be advantageously used in many other types of infection; certainly, as a urinary antiseptic, sulfanilamide seems capable of destroying a number of different organisms. As regards the present status of the clinical employment of sulfanilamide, nothing can be added to the excellent review of Long and Bliss.[30] These authors, as well as many others, have called attention to certain undesirable effects seen in association with or following sulfanilamide administration and have emphasized the need for care in the clinical employment of this drug. Not only do some members of the profession seem to have ignored these warnings, but, through articles in the lay press, knowledge of the curative value of the sulfonamides has been widely disseminated without proper emphasis having been laid on the dangers incident to their use. Unfortunately, in only a few localities have restrictions been placed on the sale of sulfanilamide and a large "over-the-counter" business in it has developed, with the consequence that an unknown

number of patients are taking this potent drug without the least supervision. A review of the available reports of undesirable effects following sulfanilamide administration may be of value, both in lessening the likelihood of repetition of such unfortunate experiences and also in tending to prevent a most remarkable therapeutic agent from falling into undeserved disrepute through careless or unintelligent use.

Minor discomfort occurs in a considerable proportion of patients subjected to sulfanilamide therapy, the common manifestations being anorexia, nausea, general malaise, dizziness, mental confusion, and peripheral sensory disturbances. A rise in temperature is not uncommon,[21] and rashes, usually morbilliform,[21, 34, 49] are rather frequently seen. In most instances, these disturbances are without serious significance, usually disappearing on discontinuance of medication, or, indeed, not requiring such discontinuance.

In 1937 Southworth[50] called attention to the fact that in patients receiving sulfanilamide treatment there frequently occurs a fall in the carbon dioxide combining power of the plasma—a fall that he interpreted as indicating the presence of acidosis. It is true that in acidosis there is a reduction in the carbon dioxide combining power of the plasma; it does not necessarily follow, conversely, that such a reduction always means that acidosis exists. The consistently alkaline urine in sulfanilamide-treated patients, noted by Long and Bliss[31] and by Marshall *et al.*[32] does not seem compatible with acidosis; to Basman and Perley[3] it suggests, rather, a carbon dioxide deficit *alkalosis*. The investigations of Hartmann, Perley, and Barnett[22] seem to prove quite conclusively that the usual disturbance in the acid-base balance produced by sulfanilamide is actually an *alkalosis*. In some as yet unexplained way, the drug causes excessive respiratory activity, with consequent reduction of the alveolar carbon dioxide and a compensatory fall in the carbon dioxide of the plasma; this leads to a *rise* in the plasma pH and the excretion of bicarbonate by way of the kidneys to overcome the alkalosis. In one case mentioned by Hartmann and his associates, the administration of a single large dose of sulfanilamide *alone* was sufficient to cause such a degree of alkalosis that tetany occurred.

The conclusions of Southworth have, apparently, been accepted by a number of physicians who have applied not even the single test employed by this author but have routinely administered bicarbonate of soda with each dose of sulfanilamide to prevent or overcome this mythical "acidosis". Such a procedure, while exceedingly unscientific, may have no serious consequences, the excess bicarbonate being excreted by the kidneys; however, in the presence of impaired renal function, actual injury may be produced. It would seem most advisable not to apply this adjuvant alkali therapy unless the existence of acidosis has been determined by appropriate means.

In 1936, Colebrook and Kenny[14] noted the occurrence of cyanosis, associated with sulfhemoglobinemia, in three patients under sulfanilamide therapy. Similar observations were made by Frost,[18] Discombe,[15] Paton and Eaton,[43] Bensley and Ross,[4] and Archer and Discombe.[2] The view at first held was that the cyanosis following administration of sulfanilamide was due to the formation of sulf- or methemoglobinemia, either of which might be of serious import, especially in patients already suffering from anoxemia. Considerable speculation as to the mechanism involved in the production of sulfhemoglobin was indulged in by the English authors, some of whom felt that administration of magnesium sulphate might be responsible for its formation in the blood, although Archer and Discombe were of the opinion that hydrogen sulfide, absorbed from the intestine, was the source of the sulfur, sulfanilamide acting as a catalyst in the reaction. They advise against the use of any cathartic capable of producing watery stools and the avoidance of a diet rich in sulfur. Later investigations have shown that the cyanosis in sulfanilamide-treated patients is not always and may not often be due to the presence of met- or sulfhemoglobin in the blood,[33, 46] moreover, instances are on record in which the cyanosis did not deepen in spite of continued administration of sulfanilamide; on the contrary, it might even disappear.[13, 33, 46] To ignore the cyanosis, however, seems scarcely justifiable in the present state of our knowledge; in the case reported by Frost,[18] as well as the one observed by Bensley and Ross,[4] there was evidence that the oxygen-carrying power of the blood was decreased and this was definitely shown to be true in a patient studied by Mull and Smith,[40] although in a more extended series, King and Leslie[27] failed to encounter a single instance in which the oxygen saturation of the blood fell sufficiently to explain the cyanosis. Until more informa-

tion is gained, it would appear by far the wiser course to consider cyanosis a warning for even closer observation of the patient and as an indication for discontinuance of the sulfanilamide if other indications of anoxia occur. Spectroscopic examination of the blood, as well as determinations of its oxygen-carrying capacity would be most desirable in these cases; unfortunately, such determinations are possible only in the larger institutions as a rule.

From its chemical structure a deleterious action of sulfanilamide on the hematopoietic system of certain individuals was predicted early in the course of its therapeutic employment. Early in 1937, Massell[34] noted the occurrence of a mild leukopenia in a patient with rheumatic fever who had been given sulfanilamide, the count returning to normal on discontinuance of the drug. Shortly afterward, Trumper[53] reported two instances in which patients with an initial leukocytosis showed a reduction in the white cell count following administration of sulfanilamide, with recurrence of the leukocytosis on ceasing administration of the drug. McIntosh *et al.*[36] considered of minor importance the occurrence of "granulocytopenia" in a child to whom they had given sulfanilamide.

Unfortunately, not all instances of leukopenia associated with sulfanilamide administration have terminated so happily, as will be seen from most of the following brief summaries.

Plumer's patient,[44] suffering from subacute bacterial endocarditis, was given 105 grains of sulfanilamide over a period of six days, at the end of which time the white cell count had dropped to 400 and death occurred.

The case reported by Borst[8] occurred in a woman of 61, treated with one of the more complex dyes for pyelocystitis over 26 days; there was a drop in the total white count to 960 and death occurred.

A man with "acute rheumatism" observed by Young[56] had white counts ranging from about 8000 to 10000 on numerous occasions during an eighteen-day treatment with daily doses of forty-five grains of sulfanilamide. The drug was discontinued because of apparent ineffectiveness; four days later, the white count was 1800 and death ensued the following day.

Mitchell and Trachsler[38] record complete agranulocytosis and death in a child with Still's disease treated with unknown amount of sulfanilamide.

Bernstein[6] used sulfanilamide orally and Prontosil by injection in treatment of a six-months'-old infant, critically ill with bronchopneumonia, bilateral mastoiditis, and erysipelas. Complete agranulocytosis developed, progressing to a fatal termination uninfluenced by injections of liver extract, pentnucleotide, and transfusion.

Model's[39] patient was a man of twenty years' age, suffering from acute rheumatic fever. For eighteen days, he was treated with sulfanilamide in a daily dosage of forty-five grains. Two days after discontinuing the drug, the white count was found to be 600, dropping to 300 the same evening. In spite of pentnucleotide and transfusion, the patient succumbed.

By the use of pentnucleotide and "campolon", Jennings and Southwell-Sander[26] were able to effect the recovery of their patient, a woman who had been treated with sulfanilamide for ulcerative colitis, and whose white count fell to 444, with complete absence of granulocytes.

O'Connell[41] reported the case of a seaman who received a total of 335 grains of sulfanilamide over a week in treatment of gonorrheal urethritis. At the expiration of this time, the drug was discontinued because of "acute catarrhal fever"; but there was reason to believe that the patient subsequently practiced self-medication. Eighteen days later, he was admitted to hospital, complaining of fever and sore throat. His total white cell count was 3500, with complete absence of polymorphonuclears from stained smear. In spite of pentnucleotide, leukocytic extract, and oxygen inhalation, patient succumbed three days later.

The case coming under the observation of Schwartz *et al.*[48] was in an apparently vigorous man of thirty-two, who was given a total of 48.6 grams sulfanilamide in treatment of a penile ulcer, supposedly chancroidal in nature. The initial white cell count was 8000; at the end of eighteen days' sulfanilamide therapy, the white cells had dropped to 2000, with complete absence of polymorphonuclears. An intravenous injection of killed typhoid bacilli was followed by a rise in temperature to 104.9 F. and a drop in the white cells to 800. Four days later, patient died, in spite of pentnucleotide, injections of liver extract, and transfusion.

A man of twenty-two had been treated intermittently with moderate doses of sulfanilamide for gonorrheal urethritis, in spite of obvious sensitivity. After a total of thirty-eight grams of the drug, he came under the observation of Berg and Holtzman[5]

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prostrated and with a temperature of 104 F. The next morning, "blood examination revealed a marked leukopenia with practically no polymorphonuclears." Liver extract and pentnucleotide failed to prevent death on third day of hospitalization.

Allen and Short[1] record the case of a girl of eighteen, who, because of a vulvar abscess, received sulfanilamide in small dosage over several short periods. Sensitivity to the drug seemed to develop; at first well tolerated, its final employment caused marked symptoms of a disagreeable nature, a rise of temperature to 103 F., and a drop in the white cell count from 17500 to 2900. Apparently, no specific therapy was employed, but the patient gradually improved and four months later blood examination revealed normal conditions.

McGinty[35] briefly reports the history of a patient observed by Hoffman. A negro girl, nineteen years old, was given a total of 49.2 grams of sulfanilamide between July 9 and 27, 1937. Four days later, she was admitted to hospital with white cell count of 1350 and absence of granulocytes. She was given three transfusions and granulocytes were observed in the stained smear on August 5. Complete recovery took place.

In addition to these twelve cases, the occurrence of agranulocytosis after administration of one of the drugs in this class has been recorded in one French[51] and in two Dutch[20, 45] reports. It has been impossible to secure the journals containing these papers.

Weinberg, Mellon, and Shinn,[54] using sulfanilamide in the treatment of streptococcic meningitis, noted the occurrence of a "moderate progressive decrease of the red cells and hemoglobin", with "a few nucleated red blood cells, polychromasia, and moderate anisocytosis," in one of their patients. Recovery took place rapidly on discontinuance of the drug and the authors were inclined to consider such a reaction as very unusual. The following month, however, Harvey and Janeway[23] reported three cases of frank hemolytic anemia apparently due to sulfanilamide medication, all of whom recovered on receiving transfusions. Three other cases are mentioned by Harvey and Janeway, but no details are given.

In the month succeeding the appearance of the report by Harvey and Janeway, McQuarrie[37] and Carey[12] both record anemia occurring in patients receiving sulfanilamide. McQuarrie's patient, a child of twenty-three months' age, ill with bronchopneumonia, pericarditis, endocarditis, and septicemia, developed hemolytic anemia quite promptly after institution of sulfanilamide therapy and, in spite of transfusions, succumbed. Evidently, the anemia seen in Carey's patient was of a much less severe nature; the author considered it "possibly" hemolytic, but recovery took place without, apparently, any heroic treatment.

A female infant, one year old, was treated by Kohn[28] with sulfanilamide for bilateral streptococcic otitis media. Probably on account of her septic condition, the child was given a transfusion, her father, after careful typing of the bloods, serving as donor; her red cells at this time numbered 4,700,000 and hemoglobin 12 grams. Following administration of 60 grains of sulfanilamide, in a daily dosage of 15 grains, it was found that the red cells had dropped to 3,250,000 and the hemoglobin to 8.5 grams. Although no reaction had followed the transfusion, the bloods were again carefully typed and found fully compatible. Although sulfanilamide was discontinued, the red cells had dropped to 2,000,000 and hemoglobin to 6 grams. Following a second transfusion rapid improvement occurred.

Three cases of anemia in sulfanilamide-treated patients were reported by Jennings and Southwell-Sander.[26] Only one of these seemed severe—a man, forty-five years of age, who was treated for meningococcal meningitis with sulfanilamide. His initial red cell count was only 3,050,000 and hemoglobin 65 per cent; under sulfanilamide treatment, these declined to 1,700,000 and 36 per cent respectively. Prompt recovery followed transfusion.

Wood[55] reports the case of a twenty-eight-year-old negro man, who was treated with a total of 44.66 grams sulfanilamide over a period of six days for streptococcal pneumonia. Marked hemolytic anemia was present on the seventh day and, in spite of two transfusions, delayed until the twelfth and sixteenth days because of difficulty in obtaining a donor, death took place on the sixteenth day.

Long and Bliss[30] state that they have observed seven cases of hemolytic anemia, but give no histories. It is possible that in this number are included the cases previously reported by Harvey and Janeway.[23]

Obviously, the occurrence of agranulocytosis or hemolytic anemia in seriously ill patients who have been subjected to treatment with sulfanilamide does not definitely establish the etiological role of the

drug. Even if it is granted that sulfanilamide was responsible for all these instances of blood dyscrasias, it must be recognized that they constitute an exceedingly small proportion of the patients who have been treated with sulfanilamide. From the routine examinations reported by Bigler, Clifton, and Werner[7] and by Campbell,[11] an effect on the bone marrow seems to be exerted by sulfanilamide; possibly an initial stimulation followed by depression. It is interesting to note that Osgood and Brownlee[42] observed no deleterious action of sulfanilamide when added to cultures of human bone marrow in concentrations of 1 to 1000 or less, but they state that the number of marrows examined was insufficient to justify final conclusion. It should be borne in mind, also, that in the intact body sulfanilamide may yield traces of a substance or substances, which, carried to the marrow, may injure the constituent cells.

Although agranulocytosis or hemolytic anemia develop only in rare instances among patients receiving sulfanilamide treatment, their occurrence has been of sufficient frequency to render it most desirable that every patient taking the drug should be under constant supervision and that white and red cell counts should be made on frequent occasions, preferably every day.

Some depression of hepatic function has been noted by Harvey and Janeway[23] in patients treated with sulfanilamide. Hageman and Blake[21] and Saphirstein[47] noted the occurrence of hepatitis; the patient observed by the first two authors was an alcoholic female of 53, while Saphirstein's was a young man of twenty-nine years' age.

Indications of a toxic action on the nervous system of animals given large doses of sulfanilamide have been mentioned by a number of workers. From postmortem examination of animals having received large toxic doses of sulfanilamide, Hawking[24] concludes that "the stress falls mainly on the central nervous system." From the clinical side, Colebrook and Purdie[13] report two instances of "mental disturbances of hysterical type", but question whether sulfanilamide was responsible. In a neurotic man of twenty-one, Hogan saw a definite paranoid condition develop following administration of sulfanilamide in treatment of gonorrheal urethritis and prostatis.[25]

From these reports of untoward results following administration of sulfanilamide, it is difficult to avoid the conclusion that the drug is potentially dangerous. While it is probable that the great majority of individuals, especially those with healthy liver and kidneys, can be given large doses over considerable periods of time without any serious damage, it seems established that this is not invariably the case. Physicians who employ sulfanilamide should do so with the knowledge that disaster may occur unless careful supervision is exercised, and this should include frequent white and red cell counts, perferably every day. It is unnecessary to add that the employment of sulfanilamide by other than duly qualified physicians is a most dangerous practice, and that it is most desirable that its sale should be permitted only on prescription.

The bibliography, omitted because of lack of space, will appear in reprints of this article.

418 East Main Street.

THE DIAGNOSIS AND TREATMENT OF ACUTE HEAD INJURIES.*

J. M. MEREDITH, M.D.,†
University, Virginia.

INTRODUCTION

In this era of rapid transportation and industrial hazards it behooves everyone, whatever his primary medical interests may be, to have a working, practical knowledge of the diagnosis and management of head injuries. Statistics annually show an increase in mortality and morbidity from head injuries which is appalling and although we may influence only indirectly the causes of the increasing incidence of head injury we can all take a very active role in the proper management of these cases. The purpose of this presentation is to propose rational, practicable methods by which injuries of the head, especially the acute types, may be properly recognized, diagnosed and treated.

The simplest form of head injury is *cerebral con-*

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†From the Department of Neurological Surgery, University of Virginia Hospital, University of Virginia, Charlottesville, Virginia, Dr. C. C. Coleman, Director.

cussion. This implies a period of unconsciousness ranging from a few seconds to a few minutes. The brain has been subjected to a force resulting in an actual shaking up of that structure, a "commotio cerebri", to use the older writers' term. Possibly petechial hemorrhages occur. There is usually little vomiting and rarely is there bleeding from the cranial orifices. The great majority of these patients proceed to an uninterrupted recovery. Concussion may or may not be accompanied by fracture of the skull. If there be no fracture present, we usually allow these patients to leave the hospital after several days' stay with the request for a follow-up examination at the end of one week. If a linear fracture be demonstrated, either beneath a scalp laceration or by roentgen ray examination, we advise bed rest for a period ranging from ten days to two weeks or longer, depending upon the symptomatology present. *Cerebral contusion* implies more severe damage to the brain, usually associated with a greater or lesser degree of subarachnoid hemorrhage. If important functional areas of the brain are affected, hemianopsia, hemiplegia, astereognosis, and other neurologic disorders may be demonstrable. If the frontal lobes are definitely contused, the patient may be restless, combative, and even quite uncontrollable, unless strong sedatives, such as paraldehyde, are given by rectum. Lumbar punctures in such cases will usually show an elevated spinal fluid pressure and blood in the spinal fluid of greater or lesser degree.

Considering the necessity for hospitalization of patients with head injury, the following is the rule by which admitting officers and internes govern themselves at the University of Virginia Hospital: Any patient with a definite history of unconsciousness, however slight, is strongly advised to enter the hospital for twenty-four hours; in fact, if the patient refuses, a release must be signed, as the hospital cannot assume responsibility for the complications which might ensue. In addition, all patients admitted undergo roentgen examination of the skull, not necessarily at the time of admission but sometime before leaving the hospital. This is necessary to determine the proper management of the case, the length of time that bed rest should be ordered, as well as for medico-legal purposes; hence it should be done as soon as practicable. We find that the best single method for the prevention of disabling headache, vertigo, etc., which occurs all too commonly after head injuries, is bed rest, usually up to two weeks, especially when fracture is demonstrable, although it is true that some of the more severe brain injuries have no demonstrable skull fracture. The presence of a linear fracture in the temporal bone, in an unconscious patient with a slow pulse and with a dilated pupil and soft tissue swelling on the side of the fracture, is strong supportive evidence of the presence of an extradural (middle meningeal) hemorrhage, requiring immediate operation. Not all linear fractures of the temporal bone are accompanied by an extradural hemorrhage, but an extradural hemorrhage rarely, if ever, occurs without a linear fracture of the temporal bone, demonstrable by X-ray examination and at operation.

The infrequent occurrence of shock as a result of head injury *per se* should be emphasized. If one take a systolic reading of 100 mm. Hg. as a fairly accurate criterion of the dividing line between shock and non-shock, in adults, one will find that only a small minority of patients fall into the shock group, i.e., blood pressure below 100 mm. Hg. systolic; unless (1) there has been an overwhelming brain injury with a severe basal fracture associated with profound unconsciousness, blood pouring from the cranial orifices, widely dilated and fixed pupils, possibly a massive intraventricular hemorrhage, etc., (2) great blood loss from scalp lacerations or elsewhere, or (3) severe associated injuries. It cannot be emphasized too strongly that head injury *per se* is only infrequently associated with delayed or secondary shock. Very often when shock is definitely present, it will be found that it is due not to the head injury but to a severe crushing chest injury, a compound fracture of the femur, a spinal or pelvic fracture or other "associated injury". It is believed that not more than 10 per cent of all head injuries are associated with delayed or secondary shock and the majority of cases of uncomplicated head injury in shock on admission can be relieved by a simple intravenous infusion of 1000 cc. of normal saline solution in a few minutes.

This point cannot be too strongly emphasized, for it has real practical as well as academic value, i.e., the most important single factor in the management of acute head injuries is the *prevention of infection* and this desideratum depends chiefly on the *early* debridement and primary suture of all lacerations of the scalp (Fig. 1). If the physician believes that the patient is in shock he is very apt to wait one or

two days or even longer before carrying out these procedures with a high percentage of scalp infections, osteomyelitis, extradural and subdural abscesses, meningitis, and brain abscess, not to mention the prolonged morbidity and the postponement of discharge of the patient with the resultant withholding of hospital beds from other patients in this day of crowded hospitals. It is quite possible to have a brain abscess from an infected scalp laceration without skull fracture, the infection passing inward through the bone, the dura and the subarachnoid space to the brain itself. The prevention of infection, accomplished mainly by the early debridement and primary suture of lacerations within four to six hours after the accident has occurred, cannot be too strongly emphasized as the most important surgical factor in

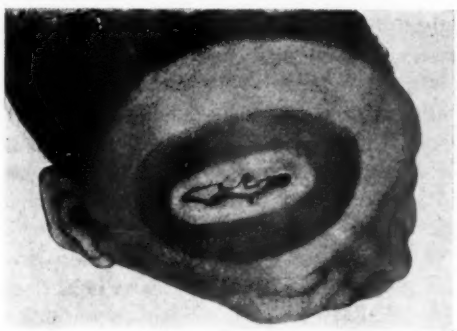

Fig. I.—The laceration is circumscribed with iodine and alcohol; novocaine is then injected and the laceration debrided and sutured. (From "Operative Surgery," ed. IV. Vol. 2, 1937, by J. S. Horsley and I. A. Bigger, C. V. Mosby Co., St. Louis. By permission.)

the successful treatment of head injuries in general. In addition, if scalp lacerations are not properly treated at the time of the injury, and do not heal *per primam*, the risk of operation, if necessary, a few days or more after the injury, for a possible extra dural or subdural hemorrhage or a depressed skull fracture, is always aggravated by the already existing infection, which may well, in such a case, be carried into the meninges and the brain itself, in spite of the most meticulous operative technique.

Statistical surveys of series of head injury cases are not often of great value, a statement also emphasized by Lehman and Parker,[1] for one observer may be speaking of all types of head injuries, another of fracture of the skull only, still another of compound fracture of the skull, and hence mortality statistics in such widely divergent groups of cases are of little or no *comparative* value. However, in a carefully controlled series of cases of acute head injury observed over a twelve months' period by us, a total of 388 cases were included, ranging from simple concussion to the more severe grades of head trauma. Of this number, 33 per cent had a fracture of the skull, i.e., about one-third of the total number of cases. This includes all types of fracture from the simple linear type to fractures of the base of the skull—compound, comminuted, depressed fracture, etc. Of the total number of cases with or without fracture, only 7 per cent were in shock. Also, of this total number of cases, 33 1/3 per cent were complicated by some type of major associated injury calling for close cooperation with other departments: orthopedic, general surgical, genito-urinary, ophthalmologic, etc.

The total mortality for this series of 388 cases of all types of head injury, ranging from simple concussion to the more severe types, was 7 5/10 per cent. It is generally held by most observers that the mortality for head injuries in general should be 10 per cent or less. However, the total mortality in 126 cases that had a skull fracture was 13.5 per cent, the majority of these cases also having associated injuries so that the assigning of the cause of death to the head injury alone is difficult if not impossible because it was found that the mortality in all types of fracture of the skull without associated injuries was only 5.6 per cent.

In a similar series of cases analyzed by Dr. C. C. Coleman,[2] Director of the Clinics of Neuro-Surgery at the University of Virginia and at the Medical College of Virginia, a mortality of 8 per cent for all types of head injury was found.

The present-day management of head injuries in general tends toward simplification. Less than 10 per cent (9.3%) of all head injuries in the clinics mentioned above were subjected to cranial operations of any type (apart from debriding and suturing of scalp lacerations on admission). Lumbar puncture is to be condemned as a routine procedure in head injury. It was utilized by us in 15 per cent of all head injury cases, thus differing from Dandy,[3] of Johns Hopkins University, who considers it of little or no use in any case. We consider it especially dangerous in suspected extradural hemorrhages, as the withdrawal of fluid from below might tend to aggravate the bleeding intracranially due to the lessened intracranial pressure which results from the lumbar puncture. It has been shown by Sprong[4] that an

almost infinitesimal amount of blood is obtained by the draining off of one to two ounces of bloody spinal fluid in a case of head trauma compared with the entire amount of blood present in the cerebrospinal fluid calculated on the total amount of cerebrospinal fluid present in the average individual, so that the efficacy of this procedure for the removal of blood is doubtful, although, in certain cases, it certainly is helpful in relieving headaches, stupor, and other disabling symptoms.

We do not advocate dehydration, as recommended by Fay[5] of Temple University, a method of treatment which appears undesirable in the main, especially at the time of the injury. We have had a number of such patients admitted after such therapy with high fever, stupor, etc., who were relieved by an adequate administration of fluids (2000 cc. daily). We maintain a fluid intake of 1500-2000 cc. daily; if this amount cannot be taken by mouth, it is supplemented by hypoclysis, intravenous infusions, or by nasal tube feedings. We invariably elevate the head of the bed, with two exceptions (1) if the patient is in shock; (2) if there is excessive mucus in the tracheo-bronchial tree in an unconscious patient, in which latter case the foot of the bed should be elevated, the patient turned on one side or the other and the mucus aspirated with a suction apparatus and atropine administered. This sometimes results in dramatic return to consciousness and rapid recovery of the patient, as demonstrated by Coleman.[6] The head down position should not be maintained more than one to one and one-half hours at any one time because of the undoubted tendency to increased intracranial pressure and possibly added intracranial hemorrhage as a result of lessened venous return from the brain while the head is lowered.

The day of frequent subtemporal decompression is definitely past in the management of acute head injury. In a recent series of ours (194 cases) analyzed from the operative standpoint, it was found that the procedure was utilized but once. It is a homely but very true statement that "one can accomplish little in operating on a case of acute head injury unless one can take something out", (Coleman) i.e., extra or subdural hemorrhage or depressed bone fragments or contused and lacerated cortical and subcortical brain tissue. The mere removal of bone as in a subtemporal decompression accomplishes little and it is surprising, if such a case come to autopsy later, to see how little of the cranium is removed by the procedure, compared with the cranium as a whole. We reserve the procedure for patients who remain stuporous and drowsy for days, possibly with a somewhat slow pulse rate, and who maintain a consistently high spinal fluid pressure (we usually accept 150 mm. of water as a top normal reading) and, if conscious, have severe headache. Subtemporal decompression is then especially indicated if no relief is obtained by intravenous 50 per cent sucrose (100 cc.) twice a day or (and) three to four ounces of 50 per cent magnesium sulphate by rectum daily. The use of sucrose is rational as a means of lowering intracranial pressure as there is no secondary rise to or above the original cerebrospinal fluid pressure reading such as frequently occurs with glucose, the use of which has been abandoned by practically all neurosurgical clinics as a measure to reduce intracranial pressure in cases of acute head injury. The operative procedures used, in addition to the infrequent subtemporal decompression, are elevation and repair of a depressed skull fracture (simple or compound), removal of extra and subdural clots and diagnostic burr openings in each superior temporal region to rule out such clots. This last procedure is simple, probably does little if any harm in itself, and may be life-saving in uncovering an unsuspected clot in a case, which, otherwise, might have been treated as one of cerebral contusion and laceration with no surgical intervention. It is strongly believed that all compound depressed fractures should be operated on within eight to twelve hours after the injury, *if not earlier*. We cannot subscribe to the doctrine of Munro[7] who stated, in a recent paper, that he always waits, in cases of compound depressed skull fracture (whether in shock or not), at least twenty-four hours, if not longer, to see how the patient reacts, and to combat shock. It is reiterated that the patient is infrequently in shock unless there is an overwhelming brain injury or a severe associated injury, and if the patient is in shock on admission he can almost always be relieved of shock in four to six hours by an intravenous infusion and blood transfusions, if necessary, unless he is so severely injured that death supervenes by that time, in which case operation would probably have been of no avail except in the occasional case of extradural hemorrhage, in which

instance death will occur rapidly, especially if the hemorrhage is low in the middle fossa compressing the mid-brain and brain stem. However, the favorable case of extradural hemorrhage usually is not in shock on admission; indeed, the blood pressure tends to be moderately or even greatly elevated in the early stages.

Everyone is familiar with the syndrome of extradural hemorrhage with an initial period of unconsciousness, possibly but not always a lucid interval varying from a few minutes to an hour or more, followed by profound unconsciousness, a typical loud, stertorous respiration, slow pulse and respiratory rates, a dilated pupil on the side of the clot, contusion and swelling of the scalp in the affected temporal area, together with a linear fracture of the temporal bone on the side of the clot (almost always demonstrable by X-ray examination), and contra-lateral paralysis or Jacksonian seizures of the face, arm and leg together with increased tendon reflexes on that side and, usually, pyramidal tract signs on the contra-lateral side as well. However, there is also a *delayed* extradural hemorrhage not manifesting itself for days or weeks after the injury, as mentioned by Horrax[8], at which time severe headache, visual failure from choked discs or stupor supervene and the clot is evacuated. The explanation of why certain large extradural clots do not cause death earlier is probably due to the fact that such lesions are, without exception, located *high* over the cerebrum from a tear in an anterior or posterior branch of the middle meningeal artery, and hence produce little or no pressure on the more vitally important mid-brain or brain stem

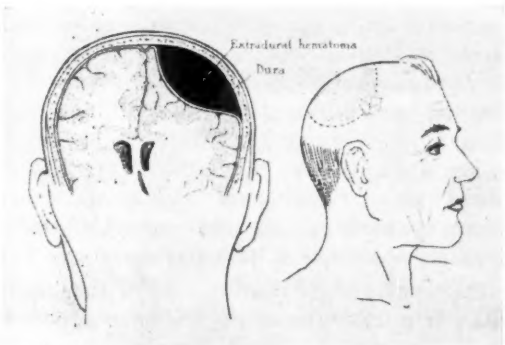

Fig. II.—Showing location of a "high" extradural clot which may not produce pressure symptoms for days or weeks. Note that the base of the brain is relatively spared from compression. (From "Operative Surgery," ed. IV, Vol. 2, 1937, by J. S. Horsley and I. A. Bigger, C. V. Mosby Co., St. Louis. By permission.)

as do the more inferiorly situated *acute* clots (Fig. II). We have seen three such late cases in the last few months; two recovered and one died post-operatively. The acute subdural clot is more insidious than is the extradural variety; there is usually no lucid interval, and the outcome is not always successful as the subdural blood found over the cerebral cortex may be only an indication of severe hemorrhage at the base of the brain from rupture of branches of the circle of Willis, or large cortical-basilar veins, and hence frequently uncontrollable. A very interesting lesion, although rare, is the intracerebral clot which is sometimes successfully evacuated by exploratory puncture of the hemisphere with a ventricular needle.

The chronic subdural hematoma is not considered in detail here as it is not germane to this discussion; suffice it to say that it is probably always post-traumatic, although usually following relatively trivial or even unrecalled trauma which occurred weeks or months before, and hence many of these patients are admitted as brain tumor suspects, the lesion being disclosed unexpectedly at operation in the absence of any traumatic history. Alcohol often is a factor in that patients of this type may receive considerable trauma, which passed unnoticed, in the course of a debauch. One such patient who has been seen within the past year denied trauma, but the patient's wife volunteered, after operative disclosure of a large chronic subdural hematoma, that, when intoxicated, the patient was accustomed to beat his head violently against the wall, causing trauma amply sufficient to produce a subdural hemorrhage. When patients with chronic subdural hematoma die post-operatively death is due, not to increased intracranial pressure but, on the contrary, to cerebral hypotension, incident to the extreme condensation of the brain brought about by the long-standing clot. It can almost be predicted at operation whether recovery will occur; if the brain has not begun to expand at the time of closure, convalescence will be very stormy or a fatal terminus will supervene.

A few general statements might be made at this juncture. The administration of morphine or other opiates to any patient who has been rendered unconscious, even momentarily, is fraught with potential disaster and is to be scrupulously avoided, because, and this point is to be emphasied, the most important single factor in the evaluating of an individual case

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of head injury is *the state of consciousness.* The patient may have fluctuations in blood pressure, the pulse may be unduly slow and the respiration even Cheyne-Stokes in type but, if the patient is fairly conscious and rational, one need scarcely fear that an acute extradural or subdural clot or other surgical emergency is being overlooked; also, one should be on the alert not to be led into the supposition that a patient is unconscious and hence a subject for operation, possibly, when he is actually aphasic and speechless, but conscious, lying quietly, with eyes closed. An increasing stupor, together with signs of increased intracranial pressure, chiefly slowing of the pulse and respiration and the advent of localizing signs in the extremities and pupils calls for operative intervention. If the all-important state of consciousness is masked by opiates or other powerful sedatives, one is at a loss in evaluating the clinical picture.

Fig. III.—Top figure shows cranial defect following repair of depressed skull fracture. Lower figure demonstrates restoration of contour of cranium by celluloid plate repair. At least six months are allowed to elapse from the time of the injury before such repair is carried out. (From "Operative Surgery," ed. IV, Vol. 2, 1937, by J. S. Horsley and J. A. Bigger, C. V. Mosby Co., St. Louis. By permission.)

Patients with large cranial defects following operation for depressed fracture in the frontal areas and over the vault of the skull are advised to have the area repaired with a celluloid plate six months or more after the operation, at which time practically all danger of infection is past. This is done not only for the cosmetic effect but also as a protective measure (Fig. III).

Children, generally speaking, recover from head injuries more rapidly and completely than do adults. Occasionally curious reactions occur in children, such as generalized convulsions, profound stupor, prolonged vomiting, etc., brought about by a degree of trauma which, in an adult, would produce a simple concussion with unconsciousness for a few minutes. Occasionally, in our clinic, these children are subjected to diagnostic burr openings in the skull to rule out an intracranial clot, with negative results, after which they proceed to an uninterrupted convalescence. The explanation of these unusual reactions is obscure except that, in regard to convulsions, it is a well-known fact that children are more liable to them than are adults, as any abnormal stimulus may instigate convulsions in a child who already has an unstable nervous system. *Tetany* should always be thought of in a child who continues to have convulsions, even unilateral ones, following head injury, and should be promptly investigated by blood calcium and phosphorus studies and, what is even more important, by the electrical reactions of Erb, as employed by Royster[9] of the University of Virginia, who has found that, although the *blood* calcium may be within normal limits, the electrical reactions may strongly suggest, if not conclusively prove, tetany. This finding is explained by him as due to the fact that the patient may have a normal calcium content of the blood serum and yet have a low *tissue* calcium, predisposing the patient to tetanic manifestations, including convulsions.

Examination of the fundi in cases of acute head injury is of little value in detecting increased intracranial pressure within the first few days, although it should not be overlooked as a differential diagnostic procedure to rule out apoplexy, in which case the retinal arteries are usually sclerosed, or uremic

coma, in which case a marked neuro-retinitis with hemorrhages and exudates will usually be seen.

Fracture of the base of the skull is usually not demonstrable by X-ray examination unless there is an extension into or from the vault. The diagnosis is made clinically, by the fact that cerebrospinal fluid escapes from the cranial orifices, a Bell's palsy or other cranial nerve palsy may supervene (if the middle or anterior fossae are involved), and Battle's sign (late discoloration over the mastoid process) or late discoloration about the eyes (indicative of anterior fossa fracture) is present. The X-ray examination may reveal an intracranial aerocele, always indicative of fracture of the base of the skull usually in the ethmoid region of the anterior fossa, a condition which, especially if associated with cerebrospinal rhinorrhea, may require operative intervention and repair of the communication with fascia and dura (Fig. IV and Fig. V). Intracranial aeroceles are usually associated with cerebrospinal rhinorrhea at one time or another, incident to the fracture of the anterior fossa, and rarely complicate the more frequent cerebrospinal otorrhea, incident to

Fig. IV.—Intracranial aerocele following a compound depressed fracture of the skull involving the cribriform plate of the ethmoid bone. Cerebrospinal rhinorrhea was present. (From "Operative Surgery," ed. IV, Vol. 2, 1937, by J. S. Horsley and I. A. Bigger, C. V. Mosby Co., St. Louis. By permission.)

fracture of the middle fossa. *Meningitis* always is a possibility when cerebrospinal fluid drains from the cranial orifices, and a cerebro-spinal fluid leak probably should call for the immediate use of sulfanilamide (gr. xx, t.i.d.) as a prophylactic measure when it is first detected, although some will object to this on the ground that the organisms will not have been verified at the time the drug was first administered. Drainage of cerebrospinal fluid from the ear or nose should not be treated actively, as far as local treatment is concerned, but the ear, especially, should be kept clean with a sterile pad overlying the affected orifice and the head of the bed elevated. The external auditory canal only should be gently cleaned with alcohol. No sprays or irrigations should be used and the patient is advised not to cough, sneeze, or strain if at all pre-

Fig. V.—Disappearance of aerocele (Fig. IV) after repair of communicating fistula in ethmoid region with a fascial implant. Defect seen anteriorly is due to bone removed at operation (later repaired with a celluloid plate). (From "Operative Surgery," ed. IV, Vol. 2, 1937, by J. S. Horsley and I. A. Bigger, C. V. Mosby Co., St. Louis. By permission.)

ventable. The ear involved should be kept uppermost, as advocated by Coleman.[10]

Alcoholic intoxication is frequently recorded as such in the hospital record when alcohol is detected on the patient's breath, a very crude test indeed for intoxication and meaning nothing as to the importance of alcohol in causing the patient's condition. Until adequate laboratory measures are available, and this is an important point, for the accurate detection of amounts of alcohol in terms of mgm. per cent of alcohol in the blood serum, as advocated by Selesnick,[11] and comparison of that figure with known clinical findings, such as incoordination, ataxia, impaired reaction time, etc., is made, the less said about alcohol as a cause of the symptoms in any individual case of head injury, the better. In England, thousands of cases of intoxication were studied by all clinical tests, each case compared with the alcoholic content in the blood serum and accurate deductions obtained so that it was definitely possible to state that if the reading in mgm. per cent of alcohol

in the blood serum reached or excelled a certain figure, the patient was undoubtedly intoxicated, regradless of any other condition he might have.[11] The Federal Bureau of Investigation in Washington and the National Safety Council[11] also utilize the information obtained from studies of the blood which is absolutely necessary in determining, for the purpose of record, whether the patient is intoxicated or not, 150 mgm. per cent of blood alcohol being accepted, for the present, as the figure above which alcoholic intoxication is definite. This method should be adopted in cities and communities in which a central laboratory with twenty-four hour service can estimate the alcoholic content of blood samples from the various hospitals of the city or community, whenever submitted. Until such a system is adopted, it is better to treat the patient with disregard for any alcoholic intake, for, otherwise, one might well think a deep stupor to be due to alcohol, whereas it might possibly be that developing coincidental with a post-traumatic surgical lesion.

SUMMARY

An effort has been made to present the subject of acute head trauma in a rational and practicable manner. There will always be differences of opinion on certain phases of this all-important subject, which probably accounts for the fact that it is certainly one of the most frequent subjects discussed in medical journals, the medical press and in medical assemblies. After the experience of several years' trial with the various methods promulgated, the procedures of observation, diagnosis and treatment outlined in this paper are believed to be both practicable and efficient in the management of acute head injuries. The mortality rates of seven and five-tenths and of 8 per cent in two separate series of cases in clinics in which these methods are utilized, would seem to bear out the value of the procedures used, for certainly a mortality of 10 per cent or less in any large group of all types of head injuries compares quite favorably with similar analyses from other clinics, although every effort is constantly being made to improve the results.

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EPIDIDYMITIS.*

J. A. GRENDESKE, M.D.,
and
W. M. BRUNET, M.D.,
Chicago, Illinois.

Epididymitis is the most common of all diseases of the testicle. The chief causes of epididymitis are infections and trauma. Primary tumors are quite rare but these when discovered are usually extensions from the testicle. New growths occur usually during early adult life and more often when there is a congenital anomaly of the testis, cryptorchism.

A brief review of the anatomy and embryology of the epididymis may aid in our presentation. The epididymis is a somewhat crescentric structure about 5 cm. long. It consists of a head, body and tail. The head, or globus major, is composed of ten to fifteen canals, the vasa efferentia, which empty into the single canal of the body of the epididymis, a tube ten to twenty feet in length when dissected out, but coiled up in the short space of the body and tail of the organ. At the tail, however, this convoluted tube straightens out and becomes the canal of the vas deferens. The entire epididymis is closely invested by the tunica albuginea and attached to the

*From the Urological Division of the Public Health Institute, Chicago, Ill.

testicle at both ends, while the body is separated from the testis by an involution of this serous covering forming an intervening pocket, the sinus epididymis. The canal and the vasa efferentia are lined by ciliated epithelium and the cilia maintain a constant movement towards the vas. The canal has a muscular coat which is composed of three distinct layers, an inner, transverse and an outer longitudinal. The blood supply is from the spermatic artery, and the artery of the vas. The veins issue from the posterior border of the testis and form the pampiniform plexus. They empty on the right side through the spermatic vein into the vena cava, and on the left side into the renal vein. The globus major, paradidymis and the vasa aberentia are developments of the Wolffian body, while the globus minor body, vasa deferentia, seminal vesicles and ejaculatory ducts are developed from the Wolffian ducts.

A number of small embryologic remains are found in connection with the epididymis, viz: the pedunculated and sessile hydatids of Morgagni, the organ of Giraldes, and vas aberrans. These analagé at times give rise to cystic and other pathological conditions and unless their relationship be kept in mind while making examinations errors in diagnosis, particularly of the chronic indurative forms of epididymitis, or neoplasms, may be made. The infectious form of epididymitis far exceeds the number of other varieties that come under the observation of urologists. It is well here to mention an acute form of epididymitis which is traumatic in origin and is due to an external injury (blows, kicks, horse-back riding, motorcycling, excessive venery, etc.). This condition is extremely painful, often accompanied by nausea, vomiting, shock and extravasation of blood and swelling.

The infectious type of epididymitis is the most common kind observed and the gonococcus is the offending organism in 95 per cent of the cases. The early diagnosis of the disease is important for upon it depends the treatment to be employed, the control of the infection, the shortening of the period of disability. Infection of the epididymis is by extension of a gonococcal inflammation from the posterior urethra to the prostate, seminal vesicles and vas. Besides the gonococcus, other pyogenic infections of the epididymis are often caused by unclean and rough instrumentation of the normal urethra. The frequent use of a dirty catheter in cases of enlarged prostate is responsible for many inflammatory extensions. Traumatism of an already infected urethra with sterile instruments is often observed, especially in poorly treated patients with gonorrhea. Epididymitis often results from too vigorous massage of the prostate. Many observers in this country report from ten to 25 per cent of their patients develop epididymitis. In our study we found 8 per cent of our cases had this adnexal extension. This figure includes all admissions during the period and of this group nearly half were admitted with a posterior infection. We admit at times a patient with an acute epididymitis and save for the history we are unable to make a trustworthy diagnosis as to the cause. This kind of an epididymal infection may conceivably be metastatic in origin.

Gonorrheal epididymitis is an acute inflammation confined to the epididymis and vas and in nearly every instance affecting primarily the lower pole or tail. The first suggestion of this complication which the physician may observe is the change in the second glass of urine. The second urine may be clear and become cloudy in a few hours. However, in five cases in this group the second urine remained clear throughout the infection. The patient usually has an increase in urinary frequency both day and night and pubic distress and at times terminal hematuria. The patient may complain of discomfort in the groin or in the epididymis itself or the condition may be precipitate and the patient seized with an aching neuralgic pain along the groin which extends down towards the testicle and is greatly increased by walking or standing. Upon examination the vas deferens is usually found to be enlarged and very tender to pressure. Rectal examination may often disclose a thickened tender mass corresponding in position with the seminal vesicles. The condition may develop without any manifestation of cord involvement. Once the epididymis becomes involved, however, it increases rapidly in size and the scrotal covering of the affected side often becomes edematous and inflamed. The pain becomes dragging in character, peculiarly sickening in quality, which at times is almost unbearable and is definitely fixed in the epididymis. The urethral discharge is usually diminished, even ceasing entirely for a time, but returns upon control of the extension. This phenomenon is thought to be due to accompanying

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high fever, and the localization and intensification of the infection and mobilization of the defense mechanism at a point which is poorly drained. Palpation reveals the epididymis to be exquisitely tender, hard and swollen, in many cases enveloping the testicle above, behind and below, but most marked at the tail. Accompanying these extensions are fever, pain, nausea and vomiting at times, and often mental and physical depression. When the tunica vaginalis becomes involved, which it frequently does, this results in acute hydrocele and this mass may confuse the practitioner to such an extent that an incorrect diagnosis of orchitis is sometimes made. In the majority of cases this description constitutes the classic picture of an acute gonorrheal epididymitis. Occasionally acute vesiculitis and epididymitis are attended with symptoms of great severity and may closely resemble an acute abdomen.

The essential points to be considered in making a differential diagnosis depend upon these facts: Gonococcal epididymitis is an acute specific infection which occurs usually within the first three or four weeks of the disease, and is due to an extension of the infection from the urethra to the prostate and vesicles and travels along the vas and is primary in the globus minor. The infection runs an acute course, is to an extent self-limited, but greatly benefited by treatment and terminates usually in complete obstruction of the affected side. In bilateral infections sterility is to be expected. However, in rare cases the repeated examination of the semen over a period of months must be resorted to before a positive diagnosis of absolute sterility is made. It is these characteristics of gonococcic epididymitis which differentiate it from tuberculous or syphilitic epididymitis. Tuberculosis of the epididymis is usually slow in onset, attacks the globus major and often involves the testicle, is practically painless, frequently complicated by hydrocele and runs a protracted course. The infection is usually secondary to pulmonary involvement, or by extension from the urogenital tract. The tuberculous mass lies close against the testicle, clinging to it like a clam shell. The vasa are often involved. The process is invasive but slow and the dartos integument of the scrotum often breaks down, leaving a discharging sinus.

In syphilitic epididymitis the process nearly always affects the testicle first and then spreads to the epididymis. It is chronic, painless and the enlargement of the epididymis may be nodular. In these patients there is often a history of an ulcer, treatment for the disease, physical evidence of lues or a positive blood Wassermann test.

In our review of 8,000 case records of five years, 1925 to 1930, of acute and chronic gonococcal urethritis in which the patients were treated with irrigations of potassium permanganate we discovered 627, or 8 per cent, developed an epididymitis. Of this number fifty, or 8 per cent, were bilateral. The complication was found oftenest in those patients who disobeyed instructions, or had suffered an extension at an earlier infection, or did hard manual labor or blended alcoholic beverages with sexual excesses. We have frequently observed complications and predicted a stormy recovery in those patients whose sexual contacts have suffered a pelvic extension. This is especially noticeable if repeated exposures have been made to the same source.

The occupations followed by this group comprised laborers, chauffeurs, salesmen, clerks, street car conductors, newspaper boys, bellboys, waiters, etc., work which necessitated long hours of walking, standing, riding or sitting. There is no question in our minds that occupation plays an important role in the extension of gonococcal infections. We have observed over a period of years the seasonal increase in the number of patients with epididymitis and the largest number is observed during the winter months.

In reviewing this series of cases it was found that they readily fall into two classes, viz.: (1) Those experiencing prodromal symptoms; (2) Those in which the extension was precipitate. The patients in group one complained of aching pains in the groins, tenderness about the inguinal rings and along the vasa, chilly sensations and often there was a slight elevation of temperature. In these patients the swelling of the epididymis was usually insignificant and there was slight systemic disturbance. Both urines were usually hazy days before the onset of the epididymitis but they became cloudy. The urethral discharge usually ceases but returns when the condition begins to improve. The majority of these patients have had one or more attacks of gonorrhea.

The second type of patient in this series had no prodromal symptoms. The onset was sudden. The patient may be seen one day when clinical examination is negative and his record shows no signs of a

posterior involvement, but on the following day there is found a fully developed case of epididymitis. The swelling of the epididymis is marked and the pain is severe and the systemic reaction depressing. The symptoms at times may be so severe as to stimulate those of a localized peritonitis. The temperature may reach 102 degrees in some patients. The edema of the vas with concomitant pressure on its sensitive coverings is the cause of the symptom complex.

The ideal treatment for acute gonococcic epididymitis consists of omission of all local treatment, rest in bed, immobilization of the testicles, local application of heat or cold and a sedative for pain. In addition, intravenous injections of sodium iodide and intramuscular injections of foreign proteids are of value. The foreign proteids stimulate the hematopoietic system and hasten recovery. Some writers praise highly the intravenous and intramuscular injection of calcium preparations. Our results have been disappointing. The great majority of our patients are in the low income group and unable to secure bed rest even for a day or two without jeopardizing their jobs; therefore, our treatment procedures are devised especially for ambulatory patients and they obviously must be both expectant and conservative. Our plan of therapy provides that all local treatments be omitted, a simple and non-irritating diet be taken, a well fitting suspensory, preferably without leg straps, be worn day and night, the application of heat in any form, especially hot Sitz baths and hot rectal irrigations, the intravenous injections of sodium iodide, one gram or two grams every other day for six or more treatments, the intramuscular injections of foreign proteids from three to five cubic centimeters at forty-eight hour intervals for six or more visits, necessary sedatives and such rest periods as the patient may secure at his work and at home. We usually find that after a week or ten days of these procedures the patient is quite comfortable but we withhold any urethral medication until the second urine has been clear for at least ten days. We think that many exacerbations of otherwise controlled adnexal infections are due to the haste in beginning irrigations or injections, prostatic massages or instrumentation. Some urologists advise puncture of the epididymis for the relief of pain and others suggest epididymiotomy, vasotomy and injections of antiseptics to the vesicles and epididymis in protracted infections. We rarely find a patient in which these procedures are indicated but in stubborn chronic infections good results have been reported following hyperpyrexial treatments.

We do not have trustworthy data as to the actual causes which precipitate an epididymitis in this series of cases but the probable factors are:

Alcohol, sexual excitement or intercourse	70%
Occupation which requires long hours of standing, sitting, walking, so forth	15%
First infections	10%
Unknown	5%

Alcohol and any form of sexual excitement are prone to produce complications in gonococcic urethritis. We think that certain occupations play an important part in the extension of the infection as well as adding to its chronicity. There can be no question that there are selective strains of the gonococcus and in certain individuals no matter how well treated and managed complications will occur. Conversely, there are other patients which despite the roughest kind of treatment do not develop adnexal complications.

First infections are usually vicious, especially in blondes, complications are frequent and in general a stormy recovery is to be expected. There is no question that an attack of gonorrhea conceivably lessens local tissue resistance and succeeding infections may be contracted with greater ease. We have observed that when posterior extensions occur with one infection, subsequent attacks frequently cause identical complications.

SUMMARY

1. A discussion of epididymitis and its causes is presented.

2. The anatomy and physiology of the epididymis are reviewed.

3. The differential diagnosis of epididymitis is discussed.

4. The number of patients developing epididymitis in this survey of 8,000 cases is recorded as 627, or 8 per cent. Of this number fifty, or 8 per cent were bilateral.

5. The treatment measures for gonococcal epididymitis are considered in detail.

6. The probable factors which precipitate epididymitis in gonococcal infections are given in tabular form.

159 North Dearborn Street.

XUM

THE ETIOLOGY OF MALIGNANT TUMORS.*

CARRINGTON WILLIAMS, M.D.,
Richmond, Virginia.

Knowledge of the cause of many diseases has led to the great advances in the prevention and treatment of these diseases which have been made in the past fifty years. Tremendous efforts have been made for many years to determine the cause of cancer and many theories have been expounded as results of thought and research on this problem. At intervals have come assurances that the cause has been discovered, but these theories or demonstrations usually have been promptly discredited. It has been recognized only in recent years that there is no one cause of malignant disease, that there is no specific cause for a specific type of growth, and that there may be very different groups of causative factors which result in the same type of cancer. This recognition of the non-specific character of the disease is a real advance in the study of its causation and should eliminate much of the misdirected and unprofitable effort of past years.

There are many factors which have definite effects in the development of new growths—both benign and malignant. Many of these factors have been known for many years; some have been too much emphasized and some have been too little considered. Some of them are of very recent knowledge and the problem of weaving a pattern from this complicated mass of data seems an almost impossible one. The almost unlimited experimentation which has been done has undoubtedly shed light on many phases of the problem, but the limitations of the experimental laboratory are such that it cannot cope with the complex nature of this disease to the point of defining the cause of any malignant growth in the human being. I believe that the solution, if ever found, must come from painstaking, careful and exhaustive clinical observation and by the application of facts so determined as to deduce the causative factors.

Some of these factors are inherent in the individual and are the results of either breeding or faulty development or metabolism. Some of these are beyond the reach of any control; others may be modified or eliminated by treatment. Other factors result from outside influence on the individual and most of them can be materially modified or eliminated.

*Read before the Richmond Academy of Medicine, January 25, 1938.

INTRINSIC FACTORS

Notable in the first group is the influence of heredity, and this factor is obviously beyond our control. There has been a tendency in recent years to belittle the influence of heredity in the development of cancer. Ewing says, "The importance of heredity must be accepted in a considerable list of less frequent forms of cancer * * * *. One may cheerfully accept all the data secured by Slye and others regarding the influence of heredity in mouse tumors, intensified by selective breeding, and still see that the hereditary tendency is not the disease itself, that the usual exciting factors must be brought into play, and that in hereditarily predisposed subjects the preventable factors may be successfully excluded". And, he adds, "It is important to remember that individuals inherit the family habits and environment of their forbears, and that these factors may explain some of the observations suggesting an influence of heredity". It seems to me that heredity is a definite factor in the development of cancer, but like all the other influences only a part, and not a neessary part, in the combination of the etiological factors which may produce the disease.

The next inherent factor is the presence of misplaced embryonic tissue. Cohnheim's theory attributed all cancer to this cause but it has been so modified and corrected during the passage of years that it is recognized now to play a part in only a limited group of cases.

Another inherent factor is the influence of the endocrine glands. While the mass of data concerning the influence of these glands on the body economy is a modern chapter, it has been many years since the female was castrated in treating cancer of the breast. This procedure was given up, but is now being revived by radiation-destruction of the ovarian function. That there is some relationship cannot now be questioned but exactly what it is, is still more indefinite than endocrine therapy itself. Experimentally the estrogenic hormones have been used to excite the onset and growth of cancer in animals. The excretion of estrogenic hormones in the urine of in-

dividuals with teratomas of the testicle further suggests an influence. Lewis and Geschickter and others have produced breast cancer in both male and female mice from a susceptible strain by the injection of estrin. On the other hand, chronic cystic mastitis in the human female, considered by some as a precancerous lesion, has been entirely relieved by administration of the same substance.

Solid adenomas of the breast may disappear during lactation, and fibroid tumors of the uterus have been observed to disappear during parturition. The influence of pituitary, parathyroid and adrenal tumors delivering an excess or a perverted extract of the gland or both has been noted not only in changes in body growth but also in the development of tumors. As our knowledge of endocrinology increases we may be able to do more in the control and perhaps in the treatment of tumors.

It seems that the proportion of the degree of civilization of a people is in direct ratio to the rate of cancer among those people. This may be due to inherent changes in the body economy, or it may be that there is increased exposure to extraneous factors.

Susceptibility and immunity may play an important part in the development of cancer or the freedom from it. Certainly there is a marked difference in the progress of the disease of apparently the same grade in different individuals. I saw what were clinically metastases in the liver from cancer of the breast removed forty years ago (this was not proved pathologically). I know of recurrences of the same type of carcinoma twenty-five years after operation and I have seen a number of recurrences ten to fifteen years after operation. These individuals must have had more than the usual resistance to the growth to have harbored it in a quiescent state for so many years.

Benign tumors may be considered an intrinsic factor which, due to the influence of other conditions, may lead to the development of a malignant growth. That a benign growth ever changes into a malignant one is denied vigorously by some pathologists, but there is much evidence to support the contrary view. Numerous examples could be cited, for every practitioner must have observed such changes. The benign pigmented mole innocently growing on the skin for a long time may, from irritation or some unexplained cause, change into a highly malignant melanoma. A large percentage of cancers of the thyroid gland appear to arise in pre-existing adenomas. Sarcoma of the uterus has arisen in fibroid tumors which have innocently been present for many years. Fibro-lipomas, especially those in the retroperitoneal space, may change into sarcoma. Benign giant cell tumors of the bone occasionally become malignant, and many other examples could be collected.

EXTRANEOUS FACTORS

The extraneous factors are principally irritants of one kind or another, but, before discussing them, brief mention should be made of diet and specific infection.

Much has been said of diet as a possible cause of malignancy, but most of the reasons for this are disposed of easily. It seems possible, however, that there may be some connection with the presence or absence of certain of the vitamins or some abnormal digestive action which would lead to an excess of carcinogenic substances.

Craver says, "One of the most interesting recent developments and perhaps one of epochal importance, is the recognition of the fact that these carcinogenic hydrocarbons are closely related by chemical structures to a series of substances that are of common occurrence in the body and of great importance biologically; namely, bile acids, cholesterol, ergosterol, vitamin D, the testis hormone and particularly the estrus producing and possibly the luteal hormone. This recognition has led naturally to the suggestion by Kennaway and Cook that under some conditions the sterols, normally present in the body, might undergo such a chemical alteration as to become carcinogenic. Moreover, it has been found that some of the carcinogenic derivatives of tar are capable of producing estrus in castrated rats or mice. This leads to a consideration of the influence of the hormones in carcinogenesis * * * *". This has been referred to above.

Specific infecting organisms and viruses have been frequently reported as being the cause of cancer. These reports have never been adequately substantiated by other workers, though, notably in Europe, some hold to the belief that they play a part in certain tumors. It seems safe, however, to dismiss the specific infecting body from consideration.

IRRITATION OF TISSUE

Irritation of tissue is perhaps the most important factor in the development of cancer. This importance is due both to its frequency and to the fact

that it can so often be controlled. Budd divided irritants into three main groups: chemical, physical, and biologic.

The chemical irritants are responsible for cancer found in certain industries. The first of these was described by Pott who found cancer of the scrotum among the chimney sweeps in England, the constant exposure to soot being the exciting factor in the growth. In the light of the modern use of tar to stimulate the growth of malignant tumors by local application to the skin of laboratory animals, it seems clear that the soot contained hydrocarbons which were carcinogenic. These hydrocarbons, as brought out above, are closely related to biologic and metabolic substances found normally in the human body. Tar derivatives may be the irritant, which results in cancer in internal organs. Cancer of the bladder has been reported in patients who had been treated during long periods of time with tar for skin lesions. It has been suggested that the very marked increase in the incidence of cancer of the lung may be due to inhaling particles of tar ground out of modern roadways or hydrocarbon from combustion of oil and gasoline.

Pipe smoking has long been considered an important factor in the development of cancer of the lip and tongue. It is highly probable that some of the products of burned tobacco which come in frequent contact with the mouth mucous membrane of these pipe smokers contain substances allied to the carcinogenic hydrocarbons of tar. While tar now holds the spotlight in cancer research there are other chemicals which influence the development of cancer. Among the workers in the aniline industry who come in contact with these chemicals there is an incidence of bladder cancer of 4 per cent to 5 per cent, according to Craver, and prolonged use of arsenic is suspected as a serious factor in skin and lung tumors.

The group of physical irritants is large. The most simple physical irritant is trauma. Ewing very positively asserts that no single trauma can initiate a malignant growth and he is doubtful of chronic trauma. It is usually easy to discredit trauma as a factor in cancer of the female breast, but the rough tooth constantly irritating the tongue may well result in malignant growth.

Constant exposure to heat is a factor demonstrated by the high incidence of epitheliomas on the hands of English locomotive firemen, and by the growths on the skin of the chest among an Indian religious sect who carry hot vessels suspended around their necks.

A variety of cancers can be influenced by the rays of the sun, X-rays and radium. It is well known that individuals constantly exposed to the sun are prone to develop skin cancers. These growths are most frequently seen in blond persons whose epithelial cells lack the protection of the pigment of the brunette or of the dark skinned races.

The tragic end of many X-ray and radium pioneer workers gave abundant evidence of the effect of the irritation of these rays. Skin cancers have been induced in laboratory animals by frequent exposure to ultraviolet rays.

Malignant tumors have been frequently observed among workers in radio-active substances. Miners who inhale dust containing this material have a high incidence of cancer of the lungs, and workers in luminous material who habitually put their paint brushes in their mouths develop sarcoma of the bones.

The group of biologic irritants is also large and frequently involves both tissue damage and bacterial infection. Chronic breaks in the continuity of epithelial coverings is a source of irritation. Examples of this occur in many parts of the body. Fissure of the lip often precedes epithelioma. Cancer of the cervix uteri is most often found among women who have suffered birth trauma and have not had adequate treatment. It is rarely seen among those who have not borne children or who have had adequate repair of lacerations.

Cancer of the stomach begins in chronic benign ulcers in a considerable number of cases. There is serious debate of this and most writers note a low incidence. I studied a large group of cases of cancer of the stomach and found suggestive but of course not conclusive evidence of pre-existing benign ulcer in about 25 per cent of the cases. Chronic ulcerative lesions of the colon often precede malignant growth. Stagnation of secretions from glands plays a part in irritating the surrounding cells. Wens of long standing not infrequently have malignant growths from their epithelial lining. Adair found that 85 per cent of a series of breast cancers gave a history of stagnation or caking of the breasts. This has been confirmed in the laboratory by ligation of nipples of animals resulting in a high percentage of malignant breast tumors. The condition of the breast described as chronic cystic mastitis apparently

results from endocrine disturbances. It causes a retention of material in the glands and ducts and is generally regarded as being followed by cancer in a percentage well above the normal breast.

The association of cancer and diseases of infectious origin is open to question but there are several very suggestive incidents. Tuberculosis and cancer of the lung are a combination not infrequently encountered and the white spot of syphilis in the tongue has been seen to become malignant. Certain tropical diseases and fungus infections are associated with malignant growths.

Chronic lesions of the skin, such as deep scars from burns which tend to develop fissures and chronic leg ulcers, are sometimes the site of epitheliomas.

SUMMARY

This review of the various factors which may influence the development of malignant tumors is superficial, yet it emphasizes two points: first, there is no one specific cause of malignant growths, and, second, a very different combination of factors may result in the same type of tumor.

The possible factors considered are hereditary predisposition, environment, faulty embryological development, imbalance of vitamine intake, endocrine dyscrasia, metabolic disturbance, immunity, susceptibility, pre-existing benign tumor, and chemical, physical and biologic irritants.

As an illustration of this conception of the etiology of malignant disease, consider two women each with the same type of cancer of the breast. One has a predisposition to cancer by inheritance; she goes through a normal pregnancy and during lactation has caked breast. Years later some other factor, perhaps some metabolic disturbance combined with the hereditary tendency and the damage of stagnation, completes the necessary influences to initiate the new growth. The other has an endocrine dyscrasia which results in chronic cystic mastitis. After years of irritation, perhaps other endocrine disturbances occur and these factors combined with some chemical irritant result in malignant growth.

It seems to me that thorough study of cancer patients in tumor clinics by clinical, physiological, chemical and pathological specialists may result in an accumulation of data from which we may deduce more definitely the causative factors of malignant disease and thereby learn to eliminate them sufficiently to prevent the development of malignant tumors.

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McGuire Clinic.

PSYCHOLOGICAL CONDITIONING.*

P. G. HAMLIN, M.D.,
Cambridge, Maryland.

One hestitates somewhat in addressing a group whose avowed purpose is the shaping of the minds of children. In his posthumously published book "Something of Myself", Rudyard Kipling quotes "Give me the first six years of a child's life and you may have the rest."

Because I am afraid an interpretation not intended might be put upon some of my remarks, thereby doing indirect harm to some child, I shall indulge in no new theories nor fanciful formulations, but shall stay to the beaten path of the written time-tested opinions of men who have grown gray in the practice of mental medicine and from an experience of some fifteen years as a psychiatrist.

The relationship of child to parent is not unmixed. Children manifest a varied interest in their parents. Father and mother may attempt to play like parts in the child's world and its nurture and education, but the child itself often exhibits a strange purpose to choose the objects of its love, its fear, its antagonisms. Emotional development occurs *pari passu* with the struggle for independence.

Young children do not differentiate and it is only when the unpleasant realities of existence force themselves inexorably upon the child's mind that it makes comparisons, becomes aware of differences and shades

*Read by invitation before a meeting of the Parent-Teachers Association, George Wythe School, at Newport News, Va., March 3, 1938.

of meaning. The young child's substitute for differentiation is identification, and one individual who acts in the same way as another is identified in the child's mind with the other. Most usual it is for children to identify people with animals, and in the phantasy of the child, the parents take the animal form. Perhaps some of the expressions of our literature when referring to an individual as "a roaring lion", "an old bear", are the ghostly survivals of these childhood memories.

Parents should never forget the extreme interest and curiosity of the child in the activities of its parents. This is entirely normal, and is the child's greatest stimulus in the acquisition of knowledge and its chief incentive to investigation and discovery. This interest is due, of course, primarily to the child's affective (emotional) interest in the parents. And here, too, perhaps, we have a cue for the teacher. To elicit the child's interest, the teacher must do something more than correctly present the facts; the teacher must also arouse some emotion or other in the student. Again I quote Kipling, with some misgiving lest it be thought that I approve of temper in the school room. Kipling says, "One learns more from a good scholar in a rage than from a score of lucid and laborious drudges. . . ." And I think what he meant was that some sort of emotional response must be aroused in the student.

Parents and teachers must have insight into the phantasy life of children to deal intelligently with them. Of course, as the child grows older and reality obtrudes more and more urgently, this phantasy life recedes more and more into the background, but it has been a part of all children; it frequently crops out in an older sick, sensitive or neurotic child. Parents especially must adapt themselves to this phantasy world of their children. Could there be anything more pathetic than a parent so engrossed in the world of reality that he has no conception of the world in which his three- or four-year-old child lives! I hope all of you know that beautiful story of Dostoyevsky's "A Beggar Boy at Christ's Christmas Tree." In this story a famished Russian tot looked in at the window of a room filled with food, sweets, and laughing happy children. The contrast between the vivid reality of the cold, hunger and death facing him and the bright phantasies of his mind is shown with manifest fidelity. On the one hand, lights, laughter, clothes, music, dancing dolls, and delight; and on the other, a frozen, frightened, famished child to whom a copper coin meant nothing, but the Christmas tree everything.

It is of interest to note children at play and to listen to their conversation at such time, without permitting them to be sufficiently aware of the presence of an adult to develop self-consciousness or shyness. It will be noted at such time that the children, and, of course, I speak now largely of children of the pre-school age, will not so much converse with one another as they will toy with their own thoughts in the other's company. A set of fancies of one child stimulates the verbalized actions of the other. No comparisons are made; merely the exhibition of greater rival possessions.

It seems hardly debatable that early memories have a great deal to do with shaping the lives, forming the characters, and affecting the health and happiness of us all. It may be worthwhile, therefore, to say something briefly about memory. I think it is safe to assume that definite memory occurs oftenest perhaps between one and two years; it may occur earlier. Doubt has been thrown upon the validity of these memories of very early age, owing to the fact that they must of necessity, when they are related in later life, be translated into adult language and built up into somewhat more elaborate structures due to adult experience, yet there is little doubt, as I say, that memory extends back certainly to between the first and second years in most individuals. As to memory, too, it must be recalled that memory may exist without the power of immediate recall. We are all familiar with the experience of trying to recall some name or incident without success and then to have it recur to us spontaneously later.

Because delinquency frequently is first manifested in the school, it is germane to our theme to say something about it here. Just what exact value to give to the different factors which may be operative, we do not know, and in the attempt to determine this, constant study is being expended. Environmental circumstances, physical stigmata, bad inheritance, certainly operate in some cases but not in all. The genotype is studied more and more in all branches of medicine and in psychiatry probably more than in the others. But perhaps the weight of opinion now is that juvenile delinquency is the psychological response to familial and social situations. Though this may be our belief, yet it certainly lacks much of being an entirely satisfactory theory. Sometimes the school bad boy who, perhaps, pilfers in a

small way and plays hookey, not only later does not always become an embezzler, but may become the president of a bank and a respected citizen. On the contrary, sometimes it happens that the prize winner at school or the constant attendant at Sunday School becomes a thief, an absconder or worse. We have only to read the newspapers to learn this much. The adult criminal is not invariably the product of the bad boy or head strong child. Mental disorder of a gross type emerges sometimes from apparently good and intellectual soil, and in families in comfortable or luxurious circumstances.

We hear much of the contrasting influence of heredity and environment, yet the two are more or less intimately interwoven. M. Bleuler of Switzerland writes: "In this connection I may mention Tiermer's investigation of the social behavior of a certain village through a number of centuries (*Archiv. f. Rassenbiologie*, 5, 1908). Tiermer found that the same families generally maintained a definite tradition in relation to personal initiative, sociability, progressiveness, tendency toward anti-social actions, politics, etc. Hardly any influence was exerted on the sociological type of the family by the women who constantly entered it by marriage. This would seem to indicate that environment as manifested in family traditions and external conditions of life is of considerable importance in the formation of character. . . ."

To return again to the very young child, speech forms probably the most intricate of the psychological attainments of childhood. The child starts his wordly external existence with a cry which within a few weeks becomes different for hunger and other discomfort. Signs indicative of pleasure can be noted at three months; at four months laughter begins, and at five eagerness. Words like "da-da" and "ma-ma" and "bye-bye" are noted about nine months. At a year the little mind stores a vocabulary of three or four words; at two it is near three hundred; at six years three thousand; and at twelve years, reckoned on the Stanford-Binet scale, over fourteen thousand. Large differences, of course, are observed in different individuals, and enormous differences when retarded are compared with precocious children.

Verbs are used relatively much more frequently by children than by adults.

It has been shown that during the first seven years the child's speech is markedly egocentric, his conversation having the nature of a monologue. Around eight years actual communication of thought becomes typical, and definite concepts of judgment and reasoning begin to appear. At this time the childish lying, which is normal and due to the immaturity of its knowledge of language forms, also begins to fade into the mental background.

The growth of the child's intelligence is a continuing process from birth. Through experience and the development of his powers of observation, he learns to adapt himself to the world about him. He learns to react to cues; he looks at the sights, listens to the sounds and observes the relation between things in his immediate surroundings. Before his first birthday he shows insight. If his toys are tied to strings to his high chair, he soons learns to toss them from him and pull them back by means of the string. At three years he will build a bridge of three blocks; at five years, defines words in terms of use. And as the years go on he gradually acquires notions of similarity, truth, error, cause and effect. His intellectual interests, however, are in the concrete things of his world and he has but little concern with the abstract. Much of his concealed thinking is primitive and there is certainly much truth in the belief that a healthy normal young boy is at heart right much of a savage. Although the notion that each individual, in his development, goes through the stages of the evolution of the race is not to be accepted too literally, yet the theory does have some applicability to the intellectual development of the child.

Mental growth is accompanied by a constant ascent of the individuality. The newborn child seems a rudimentary and vegetative organism, but the process of integration begins at once and progresses rapidly into the constantly changing pattern of attitudes, habits, postures, predispositions to action that make up that individual's personality.

The personality will be moulded by endogenous and exogenous factors. The endogenous factors are temperamental qualities, constitutional type and endocrine balance. The manifest behavior patterns, though, are strikingly shaped by the exogenous factors through social encounter and by the workings of the conditioned reflex. The effect of the nutritional presexual and sexual factors is also great as life goes on to maturity.

The development of the child's mind, from the standpoint of personality, is characterized by the

gradual achievement of emotional independence, that is a gradual breaking off from the parental nurture upon which the infant is completely dependent. Hence the parent-child relationship is probably most important of all in determining whether the child reaches psychological maturity or not. Not only does the wise parent do nothing to retard the child from the goal of emotional independence, but rather he encourages and aids its attainment. To be tied to the parents apron strings is one of the surest of all ways to invite a later breakdown into psychoneurosis or a frank psychosis when the child becomes an adult.

We hear a great deal about the only son or the favorite or only child. Disabuse your minds of any idea that the only son or favorite child is necessarily doomed to neurosis or failure. Most of you probably know of brilliant examples to the contrary. Yet the only or favorite child is in an unfortunate position in that he does not learn early to adjust to his equals. Such a one I remember right here in this city. He was very blasé; he was not interested in the pursuits or amusements of other children. and he was far from popular with them. He was very precocious and ruled his own home with a tyrany that was absolute. He was the only child of a mother whose prospects of further child bearing were almost none, and he had been very ill when a very young child. Thus a situation occurred which he was not slow to take advantage of, and when I saw him at the age of eleven years he had already a tic (habit spasm) of psychogenic origin, and because of the attitude of his parents his chances of avoiding a psychoneurosis were slim. Of course it is obvious that a child so placed, who is never denied anything, never punished, never dealt with severely, when it reaches adult life and meets the deprivations and disappointments normal to that stage, is apt to become enraged, depressed, morose and mentally sick.

Things are bound to go badly with an individual when he becomes the centre round which his thoughts, feelings and actions habitually revolve. In the culture of the mind, the emotional must not be developed at the expense of the intellectual. "I call man's inability to moderate and control the affective or emotional element in his nature, slavery," said Spinoza. "For man, under the dominion of his affections, is not master of himself, but is controlled by fate, as it were, so that, in seeing and even approving the better course, he, nevertheless, feels himself constrained to follow the worse."

Dr. Henry Maudsley of England was a great psychiatrist of a generation ago. His words bear the authoritative weight of a scholar and an experienced physician. "Men seldom break from great intellectual activity unless it is accompanied by emotional agitation. It is when the feelings are deeply engaged that the stability of the mind is most endangered, and when persons are said to have broken from over-work, the truth is usually that jealousies, frustrations, disappointments, ambitions, anxieties and fears are the real causes."

To you, who are parents and teachers, it may be well to ask the question, "What should be the real aim of education?" I will attempt to answer it by quoting Maudsley. "Unhappily," he says, "we are not yet agreed as to what should be the true aim and character of education. Regarding the subject from a scientific point of view, the best education would seem to be that which was directed to teach man to understand himself and to understand the nature which surrounds him, and of which he is a part and product; so to enable him as its conscious minister and interpreter to bring himself into harmony with nature in his thoughts and actions, and so promote the progressing evolution of nature through him—its conscious self. The highest evolution of which man's being is capable, physically, morally and intellectually, through knowledge of and obedience to those natural laws which govern not only the physical world but not less surely every thought and feeling which enters into his mind to conceive—must be the aim of any education founded on a truly scientific psychology. But if this be the true aim of education, how vast a revolution remains to be accomplished! How many things are men yet taught which they ought not to be taught. To lay down the principles of mental hygiene on a scientific basis would, alas, be to offend many cherished beliefs and to go counter to the convictions of all but a small minority of mankind. Nevertheless, I believe that the aims of true education would, if sincerely recognized and earnestly pursued, do more than all the maxims of philosophy have done, and all the arts of medicine can do to lessen the amount of insanity on earth. . . ."

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PRESENT PREVENTIVE PROGRAMS FOR FEEBLEMINDED AND MENTALLY ILL PEOPLE IN VIRGINIA.*

JAMES N. WILLIAMS, M.D.,
Director, Bureau of Mental Hygiene, State Department of Public Welfare, Richmond, Virginia.

The interest in the prevention of mental disease and feeblemindedness began years ago when Mental Hygiene was recognized as a branch of medicine. Physicians treating patients suffering from these disorders attempted to find the cause and then to expound theories of how such illness may be avoided. Many extreme and bizarre ideas were advocated during this period as was to be expected during this developmental stage of psychiatric technic.

Prior to the World War psychiatry was limited to institutions and the general public had little, if any, knowledge concerning psychogenic disorders as they were cloaked in mystery. After the World War the term psychiatry gradually became associated with a great host of disorders, including behavior problems in children, domestic difficulties and social maladjustment.

Since this time much effort has been made to extend the preventive measures as there was a gradual increase of the population of the mental institutions and it was not sufficient to wait until an individual became ill enough to be placed in an institution for treatment. The National Committee for Mental Hygiene established clinics for such individuals in the larger cities and proved the value of such work. These clinics proved to be educational and broadened the scope of the work in a very short period of time. In Virginia the first clinic to be established was the Children's Memorial Clinic in 1924, by a group of interested citizens of Richmond, as a child guidance clinic and accepts cases only within the city.

The establishment of the Bureau of Mental Hygiene in the Department of Public Welfare in 1929 under the direction of Dr. William F. Drewry aroused interest in the preventive phase of psychiatry. Psychiatrists in private practice saw the need of such a program but prior to this time there was no one available who could unite the individual efforts. Dr. William F. Drewry devoted the latter years of his life to the development of a Mental Hygiene Program in Virginia and to increasing the facilities for the prevention of mental disorders.

A mobile clinic operated about one year and visited three cities, Roanoke, Danville and Norfolk, at regular intervals. The lack of funds caused the abandonment of this type of clinic, although it was successful, leaving only two clinics in the State, both located in Richmond, The Children's Memorial Clinic and the State Mental Hygiene Clinic.

In 1934, although there was only the single personnel of the Mental Hygiene Clinic to do the work, diagnostic clinics were established which visited the counties whenever possible, usually remaining one or two days at a time. The psychiatrist, psychologist and psychiatric social worker would visit the county at a previously arranged date and with the aid of the local social worker would examine four or five individuals. The social history and physical examinations were supplied by the local worker or agency on each individual to be examined. When the examinations were completed a conference was held and each case discussed and the recommendations of the clinic given as to the best solution of the difficulty.

A written report was sent to the referring agency several days later which contained the essentials of each examination and the recommendations for helping the individual.

*Presented at the meeting of the State Conference of Social Workers in Richmond, May 6, 1938.

During the past year there was established in most of the 100 counties of the State, local departments of Public Welfare and this organization has greatly facilitated the work of a clinic in the community by giving additional aid, also in carrying out the recommendations. With such a set-up in each county it is possible to carry out treatment through a trained worker after completion of the diagnostic examination and continue contact with the patient. This is indeed an extension of the preventive program as well as the educational program, as better results are obtained which increases the interest of the people in the community. In following this routine, not only is the local worker brought into close contact with the clinic but also the local physicians, juvenile judges and people who are interested in improving the status of the "marginal individuals". After a visit to such a community it is noted that there is soon a request for help from other people, not associated with the Welfare Department, who recognize problems which were heretofore neglected as they were considered hopeless and had to be endured. It is not uncommon to have parents come long distances to have some member of the family examined at the clinic, whereas, before any educational program was followed, they were resentful of advice concerning their problem. If only a small per cent of the cases examined are prevented from the necessity of having to enter an institution for treatment, much has been saved in economic value to the individual and State, because, in addition to the cost of medical care, there is also the loss of the individual's earning power.

Thus, a few individuals prevented from having mental disorders would make the clinics valuable in a financial way and in human happiness.

In recent years a clinic was established at the University of Virginia, and regular monthly visits are made to Danville, Virginia. Similar clinics, according to reports, will be organized at several other places in the State by local agencies in an effort to supply the present demands which cannot be met by the Mental Hygiene Clinic. This clearly demonstrates that the diagnostic clinics and the educational program have been fruitful in creating the desire for a means of preventing mental disorders.

The work of the two clinics, located at Richmond and Charlottesville, continue as originally organized, devoting only certain days each week to traveling so that the routine cases can be accepted regularly.

The present program for Mental Hygiene has been extended to the schools in an effort to help adjust the child when the first symptoms of difficulty appear and to aid the teacher in dealing intelligently with the situation. Many children are problems in school, reacting in this way to a bad home situation, and they project their feelings to the teacher or to the school in general. There are others who are overplaced in school and are not capable of continuing with formal school work, but they can be trained to do some type of vocational work. These are just two of the many situations encountered by the school teachers, and if the child can be guided into the correct channel he will become cooperative and an ideal pupil. When such a child is forced to continue in school and cannot compete with the other children, he soon shows evidence of a mental disorder.

The teachers college in Farmville has requested us on numerous occasions to visit them and give the future teachers a basic understanding of the principles of Mental Hygiene and how to recognize the handicapped child. The teachers exert a powerful influence in the community and are in a position to help the child at an early stage. This position is emphasized by the statement of the late Dr. Frankwood Williams who, several years ago, estimated that there were 1,000,000 children in the public schools who would become inmates of mental hospitals. Many children have mental disorders, the first signs of which are recognizable in the younger years and at this stage are preventable. The services of the clinic are offered to schools so that special classes may be established to train the mentally retarded and handicapped children so that they will not have to encounter failure each year because they are unable to compete with normal children. Few schools have such classes for special instruction and the need is becoming greater each year.

The courts are urged to use the facilities of the clinic whenever there is a question of the individual's mental status. At this time the trial justices are particularly interested in this service as many individuals who are mentally ill manifest anti-social conduct which brings them into the courts. When such individuals are confined to penal institutions they have little chance to recover and either become worse while confined or commit worse crimes when released in order to get revenge.

It is believed essential that physicians understand

the program, and papers are presented at frequent intervals at meetings in order that they may be informed of this work. The cooperation of physicians and their aid in the prevention of mental diseases makes the program possible.

The physicians are expected to be the leaders in the local communities and are in a position to advise patients where the best treatment can be secured, especially when the patients are unable to pay for such treatment. There are out-patient departments in each of the two medical schools and each has a neuropsychiatric service. Individuals from any part of the State may receive treatment here and be confident that they will receive the services of the most competent psychiatrists. It is hoped that in the very near future psychopathic wards will be available at the medical schools for the diagnosis and treatment of mental disorders.

Another preventive measure that became effective in 1924 was the sterilization law. This law made it possible to sterilize the feebleminded individual which would prevent them from having families they could neither rear nor provide with the necessities of life. There are many that advocate sterilization in certain cases of insanity, especially when there is a family history of this disorder, as the offspring would have little chance of escaping the same affliction. Each year a large number of feebleminded and mentally ill individuals are being sterilized in an effort to prevent the increase of these abnormal individuals.

Finally, it should be emphasized that the home is the logical place for the application of the principles of Mental Hygiene, as here the conduct of the average child forms its pattern. Talks before Parent-Teachers Associations and over the radio are helpful in reaching the family group. The formation of a Mental Hygiene Society last year was a step forward, as the membership includes physicians, trained workers and the laity, all interested in the prevention of mental disorders. This organization will help mold public opinion which is the greatest and most effective weapon that can be used to combat the situation we are now facing.

CONCLUSIONS

The present prevention programs for the feebleminded and mentally ill in Virginia are intended to reach every individual. This is necessary when it is realized that the present rate of mental diseases is 317.5 per 100,000 of the general population and the institutions are being crowded with patients. Many of the mental diseases are preventable if recognized early and proper treatment instituted.

The following facilities are available in Virginia at this time:

1. State Mental Hygiene Clinic in Richmond.
2. Children's Memorial Clinic in Richmond.
3. University of Virginia Mental Hygiene Clinic, Charlottesville.
4. Medical College of Virginia Clinic, Richmond.
5. The Mental Hospitals.
6. Psychiatrists with the Family Service Society, Richmond.

It is readily understood that the above facilities are not adequate and must be expanded if we expect to cope with the situation now confronting the people of Virginia. It is necessary to decide whether it is better to spend more for prevention or vast sums for the care and treatment of the mentally ill. Certainly it would be wise to recall the adage, "An ounce of prevention is worth a pound of cure".

1014 East Clay Street.

PROBLEMS OF THE RURAL PHYSICIAN OF YESTERYEAR.*

LEWIS HOLLADAY, M.D.,
Orange, Virginia

Responding to the task laid upon me to provide a paper for this meeting, instead of attempting to discuss some new or scientific medical subject, I have chosen rather, even at the risk of boring you, briefly to outline some of my personal experiences in the early years of my practice.

Turning back the pages on more than forty years of medical practice one must realize that he has lived in a period of medical progress greater and more rapid than any that has ever previously occurred in the world's history.

A short description of the then existing physical environment will serve as a background upon which

*Read before the Orange County Medical Society, at Orange, Va., on April 1, 1938.

to envisage the problems which confronted the country doctor of this section in years gone by.

One returning to Orange after an absence of more than forty years would doubtless pause a bit before he could properly orient himself. Looking for public buildings from which to take his bearings, the freight depot and court house would give him confidence that he had landed in the right village. Of the churches in his memory the Methodist would look most familiar. A parish hall has been added on the south side at the rear of St. Thomas's Episcopal church but its spire still points to the same place in the heavens. The old Presbyterian church building is now a filling station. The Baptist church of that day became a prey years ago to one of the disastrous fires which visited Orange before the organization of our excellent volunteer fire company. Scarcely a dozen residences on Main Street remain which the passing years have not greatly remodeled or built anew.

In rainy weather he would recall the street itself—a lane of mud, with stepping stones for the convenience of the pedestrian who wished to cross; infrequent lamp posts surmounted by smoky kerosene lamps lighted his steps along the bucking board walks during the darkness of night.

Going over in his mind the business and professional men, he needs must be saddened to learn how few the Grim Reaper has left. I can recall only six who were here when I came in January, 1897—Dr. C. H. Moncure, L. S. Ricketts, Carroll Slaughter, G. J. Browning, C. D. Quisenberry, and A. J. Harlow.

School House Hill, Burgess's Hill and Marshall Heights were open fields containing about one residence each.

Springs and open wells furnished the water supply; sanitary privies did not exist; with slight substitution, "Where the tree falleth there let it lie" might well have been the slogan of the town of Orange for its disposal of human excrement. Pig pens were numerous; flies in abundance carried on then, as ever, their disease spreading traffic.

As medical men you will have little trouble in forming some idea of the problems this state of affairs produced. Being made a member of the town council in the early years of my residence here, I *promptly* abolished pigs from the corporation; this so enraged a majority of the voters that I was as *promptly* abolished from the council at the next election, and pigs came again and basked as of old in all their odorous glory! Realizing that it was a matter of education I continued my agitation to improve the sanitary conditions. The seeds thus sown have borne fruit and, while the credit for the successful harvest goes to others, I am well satisfied to feel that my efforts were not in vain. In the field of preventive medicine I battled for years before compulsory vaccination for school children began to be enforced. Smallpox was not infrequent. The minutes of The Orange County Board of Health will show that during the first ten years of its existence the county spent hundreds of dollars in isolating, treating and guarding cases of smallpox.

Diphtheria antitoxin came on the scene, I think, about 1889 or '90. I gave the first dose ever administered in Orange. Personally I feel that a young life was saved thereby, but there were not a few who contended the child would have gotten well anyhow. Well, who knows? Perchance they were right.

There were no telephones over which to summon you nor closed automobiles to speed you on your way; darkness and rain, snow and sleet had to be encountered in the open and be battled against single-handed and alone. In the small hours of the night, however dark and stormy, a messenger calling from the street replaced the nerve-wracking clang of the telephone bell now at your bedside.

Your medical supplies were carried in saddle bags thrown across your horse, with an obstetrical roll strapped to your saddle, unless perchance the condition of the roads permitted you to travel in a buggy. Responding to an urgent call some ten or twelve miles in the country to a confinement case, arriving to find that what the patient took to be her "waters breaking" was only the indignant expression of resentment of an over-crowded bladder, left you to decide whether to return home, or camp and await results; the latter was often the wiser course.

We knew nothing of X-rays and radium until the late nineties; typhoid vaccine, I believe, in 1913. Typhoid fever was practically always with us, and diphtheria took its toll of lives that now would be saved. I do not know just when intubation came into vogue; certainly I knew nothing about it in the early years of my practice, but had to do more than one hurried tracheotomy.

Let me digress right here to say, however much we may deplore the trend toward state medicine, I feel that any opposition to the work of the State

Board of Health in its efforts to immunize the children of the county against diphtheria is unwise and unjust. Doubtless there are some, perfectly able to pay for this service, who take advantage of the opportunity to get it done for nothing, but any family physician who has been diligent in his efforts to have his clientele immunized against infectious diseases will lose little by this work of the state; nay more, he will often gain much in the lessened number of charity cases he will be called upon to treat. Any doctor who has stood by the bedside of his own child gasping for breath with laryngeal diphtheria—to be saved only by hurried surgical work—will give the state representatives in this work his hearty cooperation and bid them God speed!

Richmond and Washington had the nearest hospitals to us in the early years of which I speak, and even after the opening of the Charlottesville hospitals, poor roads and slow methods of travel often threw the physician back on his own in cases of emergency.

From even this ragged description you will readily realize it was demanded of the general practitioner to do many things, surgical and otherwise, that he would not attempt in this day of easily accessible and well-equipped hospitals.

Considering it the *best chance* that circumstances permitted me to give the patient, I did surgical work then that I would feel well-nigh criminal in undertaking now—having opened more than one abdomen to remove a gangrenous appendix, to resect a bowel, or to suture bullet wounds of the intestines. Thanks to the marvelous recuperative powers of Mother Nature and the goodness of God, these patients all recovered.

Picture if you can the forlorn feelings of a youngster leaving the University of Virginia, armed with his M. D. degree and only such medical knowledge as he has been able to glean from the lecture halls, with absolutely no clinical experience, and you have your speaker!

While waiting at home to learn the result of my efforts before the State Board of Examiners, and during the absence of the community physician, I was called to a case. Well do I remember wondering what on earth the patient could have that I would be able to diagnose, and, if diagnosed, what the treatment would be. During this same period I was called to an obstetrical case, which was the very first I had ever seen! It is true that I had dragged a rag baby through a manikin *ad nauseam*, but this gave me little confidence as I faced the suffering woman in the throes of labor and realized that if *she knew* how little *I knew*, she would certainly die of shock. After short stays in The Mothers' and Babies', Polyclinic and Post-Graduate Hospitals in New York, I returned to the country and hung out my shingle for practice. With so little hospital experience, it was fortunate indeed for me, as well as for the public, that I quickly became associated with Dr. E. W. Row, of honored memory, a man whose only code of ethics was the Golden Rule; his adaptable personality rendered him equally at ease with the high and the low, the rich and the poor, the cultured and the rude; possessing a keen sense of quiet humor, he was an inimitable teller of jokes and, whenever he felt inclined to tap his exhaustless supply, never lacked for an audience of eager and attentive listeners.

For the privilege of drinking at the fountain of his rich experience and feeding upon the bread of his wide knowledge, so freely given, I shall ever feel profoundly grateful. He belonged to the type of family physician now well-nigh extinct—so much the worse for suffering humanity. To this association with Dr. Row, which lasted throughout the remainder of his life, I feel largely indebted for whatever measure of success I may have attained. Peace to his ashes!

These remarks, of course, are prompted by an experience gathered from a rather restricted area, but I refer you to the address of the president of the A.M.A. last June for a lucid description of conditions in the country at large. We find: "In those days (of which we speak) there was no knowledge of insect-borne diseases, food deficiency diseases—except possibly scurvy—vitamins, endocrines, hormones, insulin, virus diseases, the electrocardiogram, allergy, serology, standardized drugs, and other innumerable improvements of modern therapy. These are the harvest of the last forty years. The average modern medical student tries to acquire them in four hectic years of forced mental feeding. Some were taught ten, twenty or thirty years ago. Whatever the date of graduation, however, the newly fledged doctor is a perishable article—sold under a guaranty that is good only on *that* date. There is not even an expiration date as on vaccine or serum. In a few months, certainly in a few years, unless he keeps up with the march of progress, he lags behind. The

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graduate of ten or twenty years ago has had to add to his basic information as much as he acquired in his college course, if not more."

I have often wondered why so comparatively few of the recent graduates seem willing to settle in rural communities. The average young doctor, if he is anything at all, will be a greater factor for good in such a location than he will likely ever become in the over-crowded cities. The graver duties and heavier responsibilities he will have to meet in the country will serve to bring to the front and develop his native abilities. "His duties and responsibilities are those that involve the deepest interest of humanity, those that lie closest to the human heart". The country doctor, financially speaking, is probably the poorest paid man in the world, and in many instances will fully appreciate the following lines:

"God and the doctor we alike adore
When on the brink of danger, not before;
The danger past, both are alike requited,
God is forgot and the doctor slighted."

Let us not forget, however, that he will often find his richest reward in the love and grateful affection of his people; he knows their inner life; he is confided in and intrusted with their most important secrets; he learns to keep them and is trusted as no other man is trusted—not even their spiritual advisers. The life of the country doctor has a certain something, mystic charm let us say, that I would not exchange for that of any metropolitan physician, notwithstanding the many greater advantages of the latter. The meridian passed and traveling down the western hemisphere of life, I shudder to think, when looking back, what a menace I must have been in those early days to suffering humanity. Striving as best I could to keep somewhat in touch with the rapid advances in the medical world, and looking ever to the "Great Physician" for guidance, I feel that I can claim without undue immodesty at least an average degree of success. I claim and am proud of at least two distinctions—one in the medical, and one in the social world, viz: The first patient I ever had is still alive, and I have been living with the same wife for forty-five years!

After battling with disease and death for many years, one inevitably pauses at times to think on life itself. What is life? What does it mean? For my part, I am convinced that no one has ever found the true meaning of life or a solid foundation upon which to build until he is able to look up and say with the apostle of old "My Lord and My God".

CARBUNCLE OF THE KIDNEY.*

ROBERT L. OZLIN, M.D.,
New York, New York.

I have been assigned the subject of carbuncle of the kidney. I wish to discuss it with the intention of making us all more conscious of such a clinical entity, and to elaborate on a few points in making a diagnosis which, by the way, is very difficult. Out of sixty-five cases reported until a few years ago, the diagnosis was made before operation in only eleven cases.

Carbuncle of the kidney is, strictly speaking, just what its name implies, a circumscribed multilocular abscess of the renal parenchyma. In our discussion, I shall include any deep-seated infection around the kidney, such as subcortical abscesses, septic infarcts and perinephritic abscess, since the obscure diagnosis and treatment are practically the same in all cases.

*Read before the New York Academy of Medicine Graduate Fortnight at the New York Polyclinic Hospital, November 8, 1937.

This condition is almost always metastatic, and usually arises from a primary focus of infection elsewhere in the body. The causative organism is most frequently the staphylococcus aureus.

SOME POINTS IN DIAGNOSIS

First, a painstaking complete history. A large majority of these patients give a history of previous infection of staphylococcus origin, usually located in the skin, such as carbuncles, furuncles and boils, anywhere from a few days to several months before the kidney symptoms are noticed. Infections in the respiratory tract are also a common cause. We may get a history of a severe cold, bronchitis or pneumonia. The patient may have completely recovered many days before renal symptoms develop. Another cause, in my opinion, is ureteral obstruction, especially with an infected urine. This, however, is apt

to cause multiple abscess rather than a single carbuncle.

The second point in diagnosis is that pain is complained of in the region of the infected kidney in all cases. That the pain is not definitely placed and well localized is evidenced by the difficulty in diagnosis as shown by the fact there was an average delay of sixty-one days before proper treatment was instituted in forty-two cases recorded. However, we always have pain in the flank on the affected side and this should make us think of the kidney in cases of long-standing malaise, progressive prostration and fever. Chills are frequently complained of and signs of pleuritic irritation are very common. The whole clinical picture may simulate that of a blood-stream infection and Drs. Grauer and Purkin of Boston are of the opinion that an underlying septicemia is often present. Inflammatory changes extending through the diaphragm have often resulted in misleading signs in the chest of the affected side, such as diminished respiratory excursion, tenderness over the lower ribs, dullness and pain on deep breathing.

A third point is that tenderness in the region of the kidney is almost always present. This can best be elicited by a sudden jar, such as striking lightly with the fist. This tenderness is accompanied by resistance to palpation in the overlying muscles. Also, if the infection has extended to the perirenal tissues, we will notice a definite bulging in the lumbar region, a perinephritic abscess.

Fourth, laboratory findings. We nearly always find an increased number of pus cells but not enough to be convincing. Red blood cells in the urine are often found and should make us suspicious of trouble in the kidney, especially with the foregoing history. The blood count is usually high, and a high percentage of positive blood cultures were found in the cases recorded.

Fifth, cystoscopic investigation. This means of diagnosis is not very conclusive. However, we nearly always find some filling defect in the kidney pelvis and calices which would indicate any tumor, but with other signs and symptoms should be very helpful. The kidney is usually enlarged. The urine collected may not be grossly pathologic but a functional test always shows a diminished function on the affected side. In some cases cystoscopic investigation is entirely negative except for diminished function, as was the fact in one of our cases. The clinical confusion may be accounted for in part by the lack of urinary symptoms, but we must remember that the carbuncle occupies a position in the parenchyma of the kidney and may not communicate with the urinary excretory passages.

TREATMENT

Once a diagnosis is made, delay in instituting proper treatment in these cases is fatal. The patient should be operated immediately. Three types of operation can be done: First, incision and drainage, followed by nephectomy; second, enucleation of the carbuncle; third, nephrectomy.

Enucleation of the carbuncle with drainage is very satisfactory in some cases but very few lend themselves to such treatment. Incision and drainage followed by nephrectomy later, or immediate nephrectomy depending upon the condition of the patient, gives the best result in the majority of cases, except in a subcapsular, cortical infection, a decapsulation and drainage cure these. I shall now give you the case record briefly of three of our cases.

1. Dorothy O'N., age twenty-eight, housewife. This case illustrates very well the difficulty in making diagnosis. She was admitted April 8, 1937, under the influence of alcohol, complaining of pain in the right lower quadrant, rigidity over the right abdomen, temperature ninty-nine and one-half, white count 16,000, few red cells in urine trace of albumen. No other urinary pathology was present. However, the patient complained of some frequency and burning on urination. A diagnosis of appendicitis was made and an immediate operation performed. The appendix, however, according to the operating surgeon, was normal. Many adhesions were freed. Pain continued but was more localized in the right flank and costo-vertebral angle. Large doses of morphine were demanded and given for this pain until April 20 when a urological consultation was asked. A cystoscopic investigation was done by Dr. D. A. Sinclair on that day. Inspection of the bladder was negative. Number 5 catheters were introduced to the pelvis of each kidney without difficulty. The drip was very rapid from the right side. About two ounces were obtained before the drip became normally intermittent. This was thought to be due to large quantities of water being drunk by the patient before examination rather than to a hydronephrosis. PSP function test showed diminished output from both sides. A pyelogram

was done which showed two very important defects—first, a stricture of ureter on the right side; second, with the patient in the upright position, the kidney did not drop, which sign is strongly indicative of perirenal infection. However, the psoas muscles were easily seen. The patient felt better the next day after this examination but after that continued to complain of pain, was very tender in the right costo-vertebral angle and the overlying muscles were rigid. The patient demanded frequent doses of morphine for pain, until the nursing staff thought she was a drug addict since no diagnosis had been made to account for the pain. This continued until April 27—three weeks after admission—when an exploratory lumbotomy was decided upon. This was done April 27, 1937. An oblique incision was made. The peritoneum was pushed back and the fatty capsule of the kidney exposed. This was removed by blunt dissection and the kidney exposed. No pus was seen during this manipulation. The kidney appeared normal. The entire right flank was explored up to the liver and downward toward the iliac fossa. Nothing abnormal was found. The kidney was decapsulated and returned to its bed. A Penrose drain was left in the lower angle of the wound. The wound was closed in the usual way.

Progress notes: These reveal that the patient complained of no more pain after the operation about four days post-operative. The note was made that the dressings were saturated with a foul-smelling pus-like material. Thin drainage continued for about five days, then gradually began to subside when the wound was irrigated with Dakin's solution by catheter. The patient was discharged from the hospital May 17.

The second case was Stella P., white, age twenty, housewife. Past history: This patient left the hospital—Obstetrical Department—three weeks ago. A Caesarean section had been performed, and had been followed by a bronchopneumonia from which she completely recovered. She remained well for three weeks when she suddenly commenced to have severe chills, followed by fever of 104 and 105, and complained of pain in the left kidney region. She was turned over to our department two days later. A catheterized specimen of urine showed innumerable pus cells and many red blood cells. She was cystoscoped next day. The bladder showed many blister-like objects in vault. Number 5 catheters were passed to the pelvis of each kidney without difficulty. The drip from the right side was continuous for thirty minutes and very rapid. From the left the drip was slow and sometimes stopped all together. 5 cc. of distilled water were injected through the left catheter and then withdrawn very cloudy and with many large flakes of pus.

PSP was given intravenously and appeared from the right side in three minutes, while it appeared from the left in ten minutes in very poor concentration. The percentage from the right kidney was seven and one-half, but too small to estimate from the left.

Pyelogram showed hydronephrosis on the right side (compensatory), and a filling defect on the left, indicating tumor. The kidney did not drop when in upright position. X-ray of chest showed fixed diaphragm and congestion of the lungs, which is almost always the picture showed in infection around the kidney. This patient was very tender in the left flank and the overlying muscles were rigid. The leucocyte count was 15,000. The patient was critically ill and was operated on the same afternoon after the cystoscopic. A large kidney was easily removed.

Pathological report showed many small abscesses, especially in cortical portion of kidney. Diagnosis: Multiple septic infarcts of kidney.

This case was much more easy to diagnose than usual because the urinary symptoms were pronounced. She made an uneventful recovery and left the hospital in twenty days.

The third case was Mrs. Anna F., white, age thirty-nine, housewife.

Past history indicated there had been severe rheumatism in past three weeks, some sore throat, and nose bleeding at times. This, in my opinion, gives the cause of the kidney infection.

Present illness began one day before admission when she suddenly became very weak and noticed that she passed bloody urine. Passed blood several times during night. No pain. At first, I thought this was a case of bladder tumor, but on cystoscopic examination the bladder was negative except the mucous membrane was covered with many red spots resembling measles. The ureters were catheterized with considerable difficulty. The catheter could only be inserted about 25 cm. PSP was given and appeared from both sides in two minutes. The percentage was 12 per cent from the left and 2 per cent from the right, again illustrating the diminished

function on affected side. Pyelogram was negative on the left. On the right, the skiodan had penetrated into the kidney substance and this kidney was four and one-half cm. below the crest of the ilium. In this position, the ureter was kinked so that it was almost completely obstructed. The next day, after cystoscopy, the patient had chills and temperature went to 104½; the urine showed many pus cells and many red blood cells. The temperature remained high for several days. A catheter was inserted up the right ureter and left in position but no drainage was obtained. Five days after admission, due to the anuria on the right side and the extreme mobility of this kidney and kinked ureter, it was decided to operate. A nephrectomy was performed easily and the patient made an uneventful recovery.

The pathological report was multiple septic infarcts of kidney.

This case was also easily diagnosed because of urinary symptoms. The bleeding was probably due to sudden dropping of the right kidney and kinking of the right ureter.

CONCLUSION

I hope I have in a brief way made you conscious of a very serious clinical condition that is always fatal unless a correct diagnosis is made and proper treatment carried out. Let us remember the picture we have, a patient who has probably been sick for days or many weeks. He is extremely prostrated, and gives a history of infection months before, with prolonged temperature, often with chills. He complains of pain in the flank. On palpation, we find he is very tender in the flank complained of, especially on sudden jar. The muscles are resistant to palpation. The urine shows a few red cells. The pyelogram shows some filling defect, and the kidney does not drop when patient is in upright position. The functional test shows diminished function on that side. The blood count is high. No other diagnosis has been made.

In all cases of severe sepsis, if the local findings are carefully sought, a diagnosis of kidney infection can be made and treated successfully.

119 West 71st Street.

ANO-RECTAL STRICTURE OF LYMPHOPATHIA VENEREA.*

JAMES PARRISH, M.D.,
Portsmouth, Virginia

After many years of conflicting opinions, confusion of terms, and blind following of previous deductions, we are at last arriving at a better understanding of ano-rectal stricture.

Until fairly recently, only a few workers have been impressed with the significance of the relationship of lympho-granuloma inguinale to benign rectal strictures; of late this association has been better understood and appreciated generally.

While strictures of the rectum may be caused by many infectious agents (as well as various kinds of trauma, irritations and growths), we are coming to recognize more and more the common occurrence of the ano-rectal syndrome of lympho-granuloma inguinale.

"It is unfortunate that the diseases commonly known as granuloma inguinale and lympho-granuloma inguinale should have names so similar and confusing, yet be so dissimilar clinically and pathologically." In neither instance is the name descriptive of the clinical or pathological picture, and this similarity of names leads one to believe that different phases of the same disease are being described, or that different terms are applied to the same disease.

In the light of its pathology and definite venereal origin, it is felt that the term *lymphopathia venerea*, as suggested by Hoffman in 1933, should be used for the term lympho-granuloma inguinale.

The principal clinical facts of this disease, first called lympho-granuloma inguinale, definitely a misnomer, are as follows: there is a primary lesion almost always on the genitalia, where the fresh virus has been rubbed into the skin or mucous membrane by sexual contact. It may be herpetiform or a small inflamed papule. It may be multiple, and sometimes there is a superficial ulceration. It heals without treatment in a few days, and is usually dismissed as a little herpes or pimple of no significance. It is painless and, if on the vaginal mucosa, always passes unnoticed.

Six to fifteen days after the appearance of this

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primary lesion, the draining lymph nodes become involved in a very slow, progressive, destructive, inflammatory process. In the male, this inguinal adenitis runs a very prolonged course, somewhat similar to tuberculous lymphadenitis. The group of swollen glands become matted together; in multiple areas necrosis and suppuration occur; the overlying skin becomes a dark red, almost purple color and eventually, if not previously incised, multiple sinuses appear.

In women, the primary sore is rarely observed. Presumably the infection occurs on the cervix or mucosa of the vaginal vault, and at once involves the deeper lymphatics. Hence the characteristic inguinal adenopathy observed in the male is absent in the female. However, the involvement of the peri-rectal lymphatics occurs and the lymphoid tissue of the rectal wall itself becomes involved secondarily in this chronic, destructive, inflammatory process. Later the retractile scar tissue develops. Years later this scar tissue may produce lymph stasis and cause conditions, such as esthiomene to develop, as well as the tragic rectal stricture.

For the proper classification and a better understanding of ano-rectal stenosis, we are indebted to Frei of Germany, who, in 1925, demonstrated a specific diagnostic antigen, prepared from bacteriologically sterile pus from these cases, and Barthels and Biberstein, as well as Nesselrod, who so forcefully demonstrated the lymphatic drainage from the vagina to the peri-rectal nodes of Gerota.

That the Frei test is an absolute specific test for this condition has been defended by Frei in numerous publications, and has been confirmed by workers in all parts of the world. Once the Frei test becomes positive it remains so throughout life. Latent infection as well as the active disease will give a positive reaction; thus a positive test has perhaps less differential diagnostic value than a negative reaction, which definitely excludes the infection, either active or latent (except in the very early stage).

There seems to be no question as to the reliability of this test provided the antigen is potent. The extraordinarily high percentage of patients with benign strictures of the rectum who show a positive Frei test has been confirmed by many clinics, and this is the principal evidence which is offered to prove that these strictures are due to the late results of infection by the virus of lymphopathia venerea. According to Lazzari, "Excluding tumor and surgical trauma, every rectal stricture in the female admitted to the Cleveland City Hospital since 1931 has shown an associated positive Frei test." A word of caution, however—just because the Frei test is positive is no ground for concluding the rectal stricture is benign. Malignancy must be ruled out by biopsy in all cases.

There is a marked similarity in the history of these cases of lymphopathia venereal stenosis. They are usually negro females, past twenty-five years of age, in poor economic circumstances, who did not report for treatment until actual stenosis was present. Their chief complaints were difficulty in moving the bowels, painful defecation and bleeding or discharge from rectum. Ischio-rectal abscess, fistula and hemorrhoids were common complications, and some gave a history of "ribbon stools".

The lesion begins not far from the sphincter and can easily be palpated with the examining finger in all cases. Some of them show only a narrow shelf or ring of scar tissue; from this the pathology varies to complete stenosis of the entire rectum and sigmoid portions of the colon.

The stenosis is the end stage of the inflammation, the result of contraction of scar tissue which the colored race is especially good in forming. The original inflammation has been conquered by fibrosis, which makes this kind of "cure" worse than the original disease. Thus, these late cases resolve themselves into true cases of stenosis, and must be dealt with according to the degree of stenosis and associated secondary infection.

Simple dilatation, erring on the conservative side, usually suffices where the pathology is very limited, provided the patient receives the proper after-care. Where the stenosis is more extensive, as it usually is, it is necssary to resort to more radical procedures, if we hope to give more than dangerous temporary relief.

Colostomy seems a rather radical procedure for a benign condition, but the complete relief given this miserable group of unfortunates seems to me to justify its universal adoption in all severe lymphopathia venereal strictures. Colostomy not only is the sole procedure that gives lasting results, but is a safer procedure than repeated dilatations in the class of patients usually afflicted with this condition, as satisfactory cooperation seems to be impossible. After they have been partially relieved, they do not return until the stricture has again contracted to the

point of almost complete obstruction. I know of one case where septicemia developed from multiple abscesses about the rectum following dilatation. There are also fatal cases of peritonitis reported following dilatation of these brittle strictures. The almost constant presence of secondary infection often produces amyloid disease of the kidneys, cachexia, and activates latent pulmonary tuberculosis, so common in these patients, but not the etiological factor for the stenosis.

The operative procedure to be desired is a two-stage colostomy with rectal resection later. The periproctitis accompanying the stricture offers a real technical difficulty and makes all rectal resection operations hazardous, leading to frequent recurrence. However a permanent two stage colostomy after the method of Mixter, without resection of the distal end, carries a very low mortality and morbidity rate, and gives excellent results.

Irrigation of the distal loop after the proximal bowel has its morning irrigation usually keeps this loop clean. There is a minimum discharge and discomfort from the stricture once the fecal stream has been side-tracked.

I prefer to have the patient wear a tight abdominal binder and cover the colostomy opening with vaseline gauze to wearing the usual colostomy bag, since there is no sucking out of the mucosa in the former as there is when a bag is worn, and the vaseline gauze is more comfortable and safe with proper care, including diet and morning irrigations. Then, too, with the Mixter technique, where the bowel is brought out through the rectus muscle, some sphincter control of the colostomy can be developed if there is not too much protrusion of the mucosa or scar tissue about the opening. Another advantage of this technique is that the contents of the proximal loop do not escape into the distal loop.

These patients, who are universally in the lower economic strata, are able to care for themselves adequately after colostomy, and in some instances find gainful occupations again.

In helping a patient decide in favor of a colostomy, or a "hole in the side" as they sometimes term it, I have found a talk with a patient who has a colostomy for the same condition the best means of convincing them.

In conclusion, I would like to present briefly a case of lymphopathia venereal rectal stenosis, that is quite typical, and illustrates the relief afforded by colostomy.

November 18, 1936, this case was referred to me from the city clinic, where the patient had a long record of attendance. She complained of constant pain in the rectum, constipation, a slimy watery discharge from rectum, loss of weight and strength, nausea and vomiting.

Past Medical History.—Six normal pregnancies, last one in 1909; supravaginal hysterectomy, apparently for fibroid uterus, in 1916.

History of Present Illness.—About fifteen years ago, that is, around 1921, the patient began to complain of constipation, hemorrhoids, and "sore spots" around the rectum that discharged pus. Hemorrhoidectomy was done about a year after onset, but the relief afforded by this operation was only temporary. Following this a purulent discharge from her rectum developed, and this continued until this admission to the hospital. From that onset, her condition grew slowly but steadily worse. The latter part of 1935, pain in the rectum and constipation had developed to the point of causing her great distress. She steadily lost weight, dropping from 125 pounds in 1935, to eighty pounds on admission to hospital. A few weeks preceding admission, nausea and vomiting entered the picture.

Physical examination revealed an emaciated colored woman of fifty-six, with a facial expression of long suffering. Blood pressure 110/80; pulse eighty; respiration sixteen; temperature ninty-eight degrees; weight eighty pounds.

Head—Negative.

Eyes—React to light and accommodation.

Neck—Scrawny.

Heart—Sounds of fair quality, rhythm regular and normal, no enlargement to percussion.

Lungs—Respiratory murmur clear and distinct over every part of both lungs.

Abdomen—Flabby from loss of weight; no abdominal masses palpable; slight generalized abdominal tenderness.

Extremities—No edema.

Reflexes—Achilles and patellar normal and equal on both sides.

Vaginal Examination—An indurated irregular tubular mass was palpable through the posterior vaginal wall, extending as high as the examining finger could reach. Cervix well suspended, and es-

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sentially negative. No adnexal masses palpable.

Rectal Examination—Disclosed a slimy water discharge, small external hemorrhoids, brawny induration about anus and perineum. The sphincter admitted examining finger, but just inside the sphincter a tight, dense, fibrous stricture suddenly stopped any further advance.

Laboratory Data:

W.B.C.	7,100	Polys. 73%
R.B.C.	4,100,000	Hb. 66%

Urine Alb.—one plus; Sugar-negative; Micro.-occasional hyaline cast.

Blood Wassermann—negative.

Frei Test—positive.

Biopsy taken through anoscope showed only chronic inflammation.

Diagnosis.—Rectal stricture of Lymphopathia Venerea.

November 21, 1936, under ether anesthesia, the first stage of a Mixter colostomy was performed. After the peritoneum had been opened, the pelvis was explored, and no reason found to believe the bowel had been injured at the time of the supravaginal hysterectomy. The rectal stenosis extended about 10 cm. above the cul-de-sac, and there was lymph adenopathy along the rectum, extending into the recto-sigmoidal junction.

November 30, 1936, the second stage of the colostomy was done. Primary union of the original incision had taken place in the meantime. The patient's stay in the hospital was characterized by sudden disappearance of rectal pain, increased appetite and general improvement.

The last follow-up visit of this patient was in November, 1937. The colostomy was working very satisfactorily. Her weight was 115 pounds, a gain of thirty-five pounds since the operation. She stated that she had worked on a farm during the summer, and was indeed a grateful patient.

Of course, we can not consider colostomy as a cure for this condition, but I would like to outline the advantages of colostomy in this particular case.

BEFORE COLOSTOMY

1. Constant pain.
2. Continued loss of weight and strength.
3. Toxic.
4. Profuse discharge from rectum.
5. A very objectionable odor about person.
6. Confined to bed.
7. Nausea and vomiting.
8. Secondary infection present and possibilities of perirectal abscesses, amyloid disease, septicemia, peritonitis, and complete intestinal obstruction developing.

AFTER COLOSTOMY

1. Complete relief of pain.
2. Gain of weight and strength.
3. No toxicity.
4. Little or no discharge from rectum.
5. No odor except on rare occasions.
6. Up and about, able to work.
7. Good appetite.
8. Little or no secondary infection and slight possibility of any of these complications developing.

All this is weighed against the usual objections to any colostomy, and as there is no effective medical or surgical treatment, to date, for the advanced stricture itself, I can see but one conclusion.

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Medical Arts Building.

PYELITIS—ETIOLOGY AND PATHOLOGY.*

WILLIAM F. BURDICK, M.D.,
Clinical Instructor in Pediatrics, Georgetown University,
Washington, D. C.

In recent years through a closer cooperation between the pediatrician and genito-urinary surgeon, it has been learned that, except for the neoplasia of the lower urinary tract, children are subject to the same urologic diseases as adults. Since the introduction of the children's cystoscope in 1907, the study of these diseases has been placed upon the same accurate basis as in adults.

Urologic disease in the young is very common and extremely important, for it is estimated that from 1 to 2 per cent of cases seen in pediatric practice are suffering from it. It is concerned somewhat with the anomalous development of the urinary tract of which I shall speak later.

While it may be possible in the discussion to follow to say something of the many diseases affecting the genito-urinary tract in children, it was thought best to limit the scope of the papers to pyelitis, pyelonephritis and pyonephrosis, for it is this little group that give us the most trouble and compose the common urologic diseases in the young.

The purpose of my paper is to discuss the etiology and pathology of these diseases.

ETIOLOGY

Pyelitis is twice as common in children under two years as after that age, and 75 to 90 per cent of these cases occur in girls. It is uncommon under three months of age but has been seen in the newly born. In very young infants as many boys as girls are affected, but after this period it is three or four times more common in girls. After two years of age the incidence decreases.

The disease may depend upon a renal calculus, renal tumors, inflammation of the bladder, or suppurative processes in the kidney, or it may follow acute respiratory infections the infectious fevers, or gastro-enteric disturbances especially of a diarrheal nature, or be part of a septicemia. Helmholz and Schwartz have cultured the urine of infants suffering with gastro-intestinal disorders and have found 25 to 30 per cent of them contain colon bacilli, yet no other evidence of infection in the urinary tract. Whether due to diminished resistance or decreased flow of urine due to fever is unknown.

In chronic recurrent pyelitis there is frequently kinking or stricture of the ureter, causing stasis. There may be pressure from an adjacent mass, also causing stasis. An important cause in some cases is stricture of the urethral meatus. These anomalies prevent proper drainage. Neuromuscular dysfunction of the bladder may cause an atony of the ureters, thus creating stasis. Diseased tonsils and teeth may be etiologic factors in recurring pyelitis acting as foci of infection. In many cases, however, especially in young infants, pyelitis appears suddenly without any preceding infection or known causative factor.

The way in which the infection occurs is still an open question, i. e., whether blood borne, or ascending from the urethra or by the anastomosing lymphatics of the intestine and urinary organs, but probably all three routes are possible. The fact that the condition is seen chiefly in the "diaper age", the sex incidence, and the infrequency with which positive blood cultures are obtained all point to an ascending infection. This ascent does not have to occur through the lymphatics, as formerly believed, for a reflux of urine from the bladder up the ureter may occur in normal individuals. However, some cases seem to occur otherwise, as those in which there is a

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bacteremia. Helmholz has induced infections by both routes in experimental animals.

The colon bacillus is the organism found in 60 to 80 per cent or more of cases. Other germs discovered are the streptococci, staphylococci, typhoid bacillus, bacillus pyocyaneus, bacillus lactis aerogenes, bacillus proteus, and the Freidlander bacillus. The gonococcus seldom infects the pelvis of the kidney.

Rarely pus in the urine may result from direct extension of some pathologic process outside the urinary tract, as paravertebral abscess from caries of the spine a perirenal abscess, or an appendix abscess may rupture into the urinary tract.

PATHOLOGY

When a calculus or ureteral stricture causes urinary infection the lesion is usually unilateral and confined to the parts above the calculus or stricture. In other instances the process is diffuse. The amount of cystitis is variable. In infants it is rarely sufficient to give rise to bladder symptoms, but older children are apt to have bladder symptoms due to cystitis.

The chief lesion in the upper urinary passage is said to be pyelitis, which means a catarrhal inflammation of the pelvis and calices with congestion and swelling of the mucous membrane. Minute hemorrhages also may occur. Pathological observations are notoriously few because patients with pyelitis rarely die. Nearly all autopsies have been done either in cases of long standing pyuria or else acute cases associated with sepsis. In such cases it has been found that pyelonephritis is regularly present in addition to pyelitis. There may be merely collections of polymorphonuclear leucocytes or small abscesses throughout the parenchyma of the kidney.

The infection may die out and healing take place with scar formation. In a small number of cases there has been widespread destruction of parenchymatous tissue. The remaining renal tissue, though adequate for the immediate needs of the child, is not sufficient for his needs for subsequent growth. After a lapse of years symptoms of renal insufficiency appear, which means chronic nephritis, and that is another story.

The term pyonephrosis is usually applied to an extreme condition in which the pelvis and calices of the kidney are greatly distended with pus and in which compression has obliterated most of the renal parenchyma. This is rarely seen except with organic obstructions, and it is the result of a prolonged obstruction with infection. The mucous membrane of the pelvis is extremely altered. The remnants of the parenchyma show marked evidence of infection.

5402 Connecticut Avenue.

PYELITIS—SYMPTOMS, DIAGNOSIS, TREATMENT.*

JAMES M. MOSER, M.D.,
Associate Professor of Pediatrics, Georgetown University,
Washington, D. C.

As far as the symptomatology is concerned, we shall include under the term pyelitis those other concomitant infections which frequently may co-exist, namely, pyelocystitis, pyelonephritis, and occasionally pyelonephrosis. Clinically, it is our custom to diagnose our cases as "acute pyelitis" and "chronic or recurrent pyelitis".

In very few diseases is there such wide variation in the severity of the symptoms as in this one we are discussing today. In many cases the symptoms are so mild that they would be overlooked except for a routine urine examination, while in others they may be alarming in the extreme. In acute pyelitis the onset is usually sudden, with a high fever ranging from 103 to 106, chills, vomiting, pallor in spite of the high fever, and extreme restlessness and fretfulness. The chill of onset is frequent in older children, but seldom seen under two years of age. The temperature curve shows wide remittent swings, with a gradual return to normal, under effective treatment, within one to two weeks. There may be marked digestive symptoms such as vomiting, anorexia and occasionally diarrhea. It may be difficult to decide whether these are due to the urinary tract or occur as primarily digestive. Nervous symptoms, especially in the very young infant, may be convul-

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sions, meningisms, and great prostration. Frequently he appears to be very hypersensitive, crying upon the slightest manipulation. Contrary to most infantile illnesses, he is apparently much more content lying absolutely quiet and untouched. Frequently there is a certain amount of abdominal tenderness, particularly on palpating the kidney region. Older children may locate the pain themselves over one or both kidneys. In very young infants, when he is held over the mother's shoulder with the back to the examiner, a definite pain reaction may be obtained on firm palpation over the infected kidney. Bladder symptoms are common in all ages, especially frequency and dysuria, the severity depending on the amount of pus passed in the urine.

Pus is quite variable in quantity, ranging from such a large amount as to cause temporary obstruction of the ureter with consequent ureteral colic, to almost total absence of pus in the urine for a few days. Frequently the high fever may be sustained for several days, during which time the urine examinations are negative for pus, when quite suddenly the temperature drops to normal and the next specimen will show a great shower of pus cells. Clumping is commonly found, especially in centrifuged or gravity specimens. If nephritis is co-existent, albumen and various types of casts occur; as also red blood cells, occasionally sufficient to produce a hematuria. Epithelial cells from all parts of the urinary tract may be present, and the most frequent causative bacteria, namely, the colon bacillus, is usually found in a catheterized specimen. A leucocytosis of from ten to twenty-five thousand is present in most cases. In spite of the extreme pallor at onset, a secondary anemia is uncommon except in the chronic or recurrent type. Microscopic pus and a bacteriuria may be found many days after the fever has declined to normal.

In a differential diagnosis of the acute form, the following conditions must be ruled out, namely, appendicitis, influenza, pharyngitis, typhoid fever, pneumonia, diaphragmatic pleurisy or "devil's grippe", malaria, and other conditions in which the predominant symptom is fever alone. In our experience, perhaps the most frequent similar symptom-producing disease and the most difficult to differentiate is that syndrome known as "exanthem subitum", or perhaps better called "Zahorsky's measles". This disease, which is characterized by a high fever, prostration, irritability, anorexia, leucopenia, and occasional gastro-intestinal symptoms, is not often diagnosed until the characteristic rash appears at the end of the fourth day. Pyelitis is often suspected, but can be eliminated by the leucocytosis and the finding of pus in the urine. The other conditions mentioned may be ruled out by their characteristic physical and laboratory findings, always, however, bearing in mind that a pyelitis may suddenly show up as a secondary complication to many other conditions. Often a child may seem surprisingly well and still run a temperature of 103 to 105. If fever of either high or low grade persists without any demonstrable reason, we should not overlook urinary infection. In the last analysis pyuria must be demonstrated in infections of the urinary tract, and once its presence is established, an endeavor should be made to locate its source.

The pediatrician is at a loss to make a diagnosis until an examination of the urine is obtained. This examination must be absolutely accurate and thorough. It is not enough to ask the mother to submit a single specimen of urine in a suspected case. How often we see a diagnosis of pyelitis made upon the finding of pus in the urine, only to discover that the infant has a simple leucorrhea, secondary to some other cause. The examination should be made either of a twenty-four hour specimen or of staggered specimens passed at different times of the day or better still catheterized specimens. This latter procedure being extremely difficult in non-expert hands in young infants, it is at least feasible to have the mother bathe the vulvo-vaginal region thoroughly before the specimen is passed. In very young infants it is possible to obtain a satisfactory specimen for examination by placing a wad of sterile cotton in the diaper, and expressing the urine thus obtained into a clean container. A positive final diagnosis should never be based on a single specimen examination. It is frequently a mistake to withhold a diagnosis of pyelitis because there is no "clumping" of pus cells present. While clumping is almost a sure sign of pus, many specimens in an acute attack will nevertheless show a great flood or shower of pus cells with very little clumping. Most authorities agree that the presence of ten or more pus cells in the low power field of a catheterized specimen, whether or not there is clumping, is indicative of pyuria. Local conditions which contaminate the urine, such as vulvo-vaginitis and balanitis in the male infant, can only be ruled out

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by catheterization or thorough cleansing of the parts before urination. It should also be remembered that pus cells degenerate quite rapidly in urines that are left standing; hence the specimen should be examined as early as possible.

In the chronic or recurrent type of pyelitis we have an even more varied symptomatology. The mother tells us the child has never been well since an attack of "stomach trouble with fever" many months back. He is subject to similar spells at frequent intervals, he is under-weight, will not eat, restless at night, has vague rises of temperature, occasional headaches, bed-wetting and is very irritable around the house and unfriendly with his playmates. He has a secondary anemia and frequently the pale, sallow complexion which has been dubbed "pyelitis pallor". Intensive examinations show no demonstrable cause for it all until we find, if we are lucky, after frequent persevering urinary examinations, a pyuria. The very next specimen may be absolutely free from pus. These cases are difficult; they must be differentiated from nutritional disorders due to dietary and hygienic errors and from chronic diseases such as tubercular infections, etc. This form of pyelitis has been known to drag along through years, even into adult life. Here again we find a diagnosis can only be made by elimination and the finding of pus in the urine.

TREATMENT

In the acute form, rest in bed is essential and should be enforced. The patient may be allowed to sit up in bed to facilitate drainage of pus. The disease seems almost self-limited in some cases, the patient recovering and the urine becoming free from pus in two to three weeks under simple dietetic and hydro-therapeutic measures. The diet should be fluids, and water especially should be forced. In severe cases where vomiting and dehydration are present one should not hesitate to give fluids parenterally. Daily bowel evacuation is desirable. Where free drainage into and out of the urinary tract is present, excellent results have been obtained by the use of urinary antiseptics and alkalis. Clinical experience has proved that hexamethylenamin in intensive doses as high as sixty to eighty grains per day is beneficial. This is given for a period of one week to the point of tolerance, followed by a rest period, and then repeated another week. If gastric or bladder symptoms develop the drug is discontinued for a few days and then resumed in smaller doses. During this period of treatment, the urine must be kept acid by the use of ammonium chloride or acid sodium phosphate in sufficient doses.

Alkalinization of the urine also has given good results in many hands. Potassium citrate, or, better still, sodium bicarbonate, is given in sufficient doses to keep the urine alkaline to litmus paper constantly for a period of at least seven days. To do this it may be necessary to give the bicarbonate in doses of 120 grains in twenty-four hours to a child two years of age. If necessary, the mother should be taught to test the urine with litmus paper at frequent intervals during this period. A note of warning should be sounded as to the possible results of too prolonged alkalinization. We have occasionally seen a pyelitis develop into a more or less chronic alkaline cystitis. We have also seen several cases of an alarming alkalosis result from a too zealous use of this treatment. Up to the present time we have not been impressed with the results obtained from the use of hexylresorcinol in its various forms.

More recently, favorable reports as to the use of mandelic acid are beginning to filter in, but, so far, sufficiently good clinical results in children have not been obtained to justify its widespread acceptance owing to the difficulty of its administration to young children. In the form of sodium mandelate it is given to a child six years old in fifteen grain doses five times a day together with an acidifying drug such as ammonium chloride. Drastic restriction of fluids during the period of treatment is necessary, which would seem to contraindicate its use in young children. It is also contraindicated if albumen and casts are present, which would seem to rule out its use in a co-existing pyelonephritis. The fact also that a rather severe Ketogenic diet is necessary to its proper use makes it a measure of doubtful advisability in older children whose nutritional level is already at a low stage.

A more promising drug which yet awaits any extensive clinical trial is sulfanilamide. Such reports as we have together with our own experience have been favorable enough to warrant its more frequent application. A quite recent resumé of his results with this drug in pyelitis has been made by Helmholz of the Mayo Clinic. He advises the following safe, maximum dosage per twenty-four hours: Infants seven and one-half grains; children two to three years of age fifteen grains; four to six years twenty-two grains; six to twelve years thirty

grains. After four or five days the dosage should be reduced by one-half. His summary is impressive:

"Sulfanilamide on administration produces a urine that is strongly bactericidal for most of the organisms which cause infection of the urinary tract. The dosage which is necessary to produce bactericidal urine is considerably less than doses which have been given without any ill-effects, for infections with streptococci. Its ease of administration, its use in the acute stage of the disease, its action in an alkaline urine, and its successful use in cases of renal insufficiency, make it a drug of great usefulness in the treatment of acute and chronic infections of the urinary tract. It takes the place of other urinary antiseptics in its successful application to certain types of cases in which other substances have failed, but because of its lack of action on the streptococcus faecalis, it cannot replace them entirely."

Here, again, we would sound a note of warning as to the dangers of this drug in pediatrics, not only in this disease but in other infections where its use may be deemed advantageous. We have seen young children completely "knocked out," showing evidences of great prostration, headache, loss of reflexes, discoloration of skin, low blood pressure and severe gastric disturbances. We saw one case in consultation where the drug had been given for a streptococcic pharyngitis with glandular involvement, and on the second day of administration we escaped making a diagnosis of poliomyelitis only by withholding the drug for two days and seeing the symptoms vanish.

The treatment of the recurrent type pre-supposes a complete urological examination together with the elimination of a possible hematogenous origin due to diseased foci. In the great majority of cases investigation will show some obstruction or anomaly along the urinary tract with consequent urinary stasis as the cause of persistent pyuria. Cystoscopy, catheterization of the ureters, pyelography, etc., may be necessary to reveal such conditions. Removing diseased tonsils, clearing up of infected sinuses, regulation of dietary habits and correction of hygienic errors, have cured many cases of stubborn pyelitis. A case resisting medical therapy for more than four weeks should invite the assistance of the urologist.

In closing, we would cite the case of a child six years old with recurrent pyelitis of some nine months' duration. Urologic and X-ray examinations finally led to inoculation of a guinea pig with material obtained from the suspected kidney. In one week the guinea pig died of tuberculous peritonitis. The parents refused to accept the advice of counsel that the kidney should be removed and gleanings from the same kidney were injected into another guinea pig in another laboratory. After four weeks the pathologist reported that the said guinea pig was the healthiest he had in the shop. The patient at present is twenty-one years old and is a very robust and normal young woman, enjoying the use of both her kidneys.

3751 Jenifer Street.

SULFANILAMIDE—ITS USES AND DANGERS.*

F. MUSGRAVE HOWELL, M.D.,
Hopewell, Virginia.

Following the experimental work of Domagk, published in 1936, numerous reports now testify to the efficacy of sulfanilamide in the treatment of infections with Beta hemolytic streptococcus.

Particularly striking are the reports on meningitis and puerperal infections of this type. Favorable reports have also been issued on its use in meningococcus meningitis, infections with the gonococcus and in type III pneumonia. The drug has also been used with apparent benefit in case of erysipelas and severe cellulitis, and also in gas bacillus infection. Many have found the drug effective in the treatment of infections of the urinary tract, with the exception of streptococcus fæcalis.

The mortality rate in hemolytic streptococcus meningitis, of which ear infection is most commonly the cause, has been estimated as high as 95 per cent, but with the use of this treatment seven recoveries in eight cases have been reported. In most of these reports prontosil solution or sulfanilamide solution

*Read before the Fourth District Medical Society at Hopewell, Va., February 15, 1938.

has been used intra-spinally in addition to oral administration.

Colebrook and Kenny reported results from the use of prontosil at Queen Charlotte's Lying-in Hospital in London. Two consecutive years, in the second of which prontosil was used as a routine, showed an abrupt drop from a mortality of 20 per cent to 4.5 per cent and a marked reduction in the duration of illness. They attribute results to a diminution of the invasive powers of the streptococcus, with less tendency to penetrate from the birth canal to the peritoneum or blood stream. However, the North Western Isolation Hospital, in the same city, had also had a progressive drop in mortality in cases of this type for several years around this time without the use of sulfanilamide therapy. The writers feel that variation in virulence has to be taken into account when estimating results.

In infections of the urinary tract sulfanilamide has the advantage that it is effective in both alkaline and acid urine, more so in the former.

Methenamine and mandelic acid both may cause hematuria and mandelic acid therapy necessitates the maintenance of an acid urine, which may be difficult or impossible.

The use of sulfanilamide in gonorrhea has developed within the last year, and several reports have been issued on its routine use in clinics, in both acute and chronic cases. Results have been very satisfactory, as high as eighty to 90 per cent cures in some reports, and benefits have been marked in complications, such as arthritis.

Whether the drug should be used alone or combined with local treatment remains to be determined. There may be a tendency to discontinue treatment on apparent cure, and also a difficulty in keeping the patient under observation.

Sulfanilamide is not a drug for self-treatment and the patient should be seen every three or four days.

In Glasgow the drug has been tested in a series of cases of erysipelas and the results compared with those from ultra-violet therapy.

Sulfanilamide is the official name adopted by the Council on Pharmacy for para-amino-benzine-sulfonamide. The drug was originally introduced as prontylin and many other proprietary names have been applied. Several allied substances have been used in the treatment of these infections but it appears that sulfanilamide is the effective agent and that the other allied chemicals are converted to this form within the body.

Sulfanilamide is readily absorbed when taken orally and in the majority of cases nothing is gained by parenteral administration unless some condition, such as vomiting, renders the oral route impossible. Subcutaneous injection has been used and also intraspinal and intramuscular.

In meningitis the best method is undetermined and the intraspinal route may be necessary.

Sulfanilamide is sparingly soluble in water, 0.8 per cent at 37°C. Solutions for injection are prepared with the powder by the addition to normal saline near the boiling (90°C.) point. The solution is then cooled to 37°C. for administration.

This solution crystallizes readily and no ampules are available.

Prontosil, the di-sodium salt of an allied chemical, (2.5 per cent) is available in ampules, and has been used by many, but stability is probably the only advantage and the solution is more irritant. This preparation corresponds to the prontosil soluble of Europe.

It has been estimated that complete absorption is obtained by the oral route in about four hours, the drug being widely distributed by the blood to the tissues. Concentrations, but little lower than in the blood, have been found in spinal fluid, pleural and peritoneal effusions and prostatic secretion.

It is believed that a blood level of about 10 mgs. per cent should be maintained for effective action.

The drug is eliminated through the urine within twenty-four hours after administration is discontinued. The most advantageous dosage cannot be considered fully determined. Long has found 1 gm. for twenty pounds of body-weight every twenty-four hours, tolerated for one month. The dose should be distributed to maintain a constant level and the following is suggested for severe infections:

5 gms. in twenty-four hours, in six doses at four-hour intervals. On improvement, this should be reduced to 4 gms. in twenty-four hours—four doses. 3 gms. in twenty-four hours may be continued for three to four weeks.

For children Helmholtz uses: Infants, 0.3 gm. daily; two-three years, 0.5-1.0 gm. daily; four-six years, 1.0-1.5 gm. daily; twelve-fifteen, 1.5-2.0 gm. daily.

Subcutaneous:

Sulfanilamide in solution 1.6 gms. at eight-hour intervals.

Prontosil seems to give results with less quantity.

It is necessary to continue the drug for some time after apparent recovery.

Intraspinally:

Sulfanilamide solution (0.8 per cent) in normal saline is administered.

Prontosil solution has been used by many but it is said to be more irritant.

5 cc. less than the amount of spinal fluid withdrawn is injected, and as much as 60 cc. in twenty-four hours has been given by this route.

At present it is well when using sulfanilamide to give no other drug, with the exception of sodium bicarbonate. Sulphates are particularly to be avoided.

The mode of action of sulfanilamide is far from clear.

Reports on its bactericidal properties are variable. Osgood has recently reported his studies of the action of the drug on the streptococcus in cultures of human marrow, and concludes that the major action is neutralization of toxins, analogous to the action of an antitoxin.

He found that concentrations of 1-1000 did not kill the streptococci, but did cause a decrease in the rate of division.

The drug appeared to have no direct toxic effect on the nucleated cells of the majority of bloods and marrows. He also found considerably weaker concentrations than those used clinically appeared to have equal effect.

Bigler has conducted a clinical study on the effects of sulfanilamide on the Leucocytes in various types of infection and in cases without infection; in no case did any increase in the leucocyte count result, or in the percentage of polys. In two cases a leucopenia resulted, and at the end of the infection a rapid fall in the leucocytes was observed.

Taking into account the extensive use of the drug, it would seem to have a wide margin of safety. However, numerous toxic effects of the drug have been reported. Mild reactions include headache, anorexia, nausea, vertigo and acidosis. Cyanosis frequently develops; in three-fourths of the cases observed by Long and Bliss, methemoglobinemia and sulph-hemoglobinemia may develop.

George Discombe has reported several cases of marked cyanosis developing under treatment with this drug at St. Bartholomew's Hospital. Of seven cases, five had been given frequent doses of magnesium sulphate and a sixth had wet dressings of this salt applied to a large gangrenous area. He considers the condition not serious, though alarming, provided the drug is stopped. However, he points out that, if the hemoglobin is already very low (30 per cent), active hemoglobin may be fixed to a dangerous extent without cyanosis developing, and that merely watching for cyanosis is not a sufficient precaution. He advises hemoglobin determination at the onset of treatment and every fourth day.

Severe toxic effects occur occasionally, and apparently constitute individual idiosyncrasy to the drug. Two fatal cases of granulocytopenia have been reported recently, developing under treatment for a chronic penile ulcer in the one case, for acute gonorrhea in the other. Red and white blood cells should be examined periodically during the course of treatment.

The deaths which resulted from the administration of elixir of sulfanilamide, Massengill, were attributed, after thorough investigation, to the effects of diethylene glycol, used as a solvent in this preparation.

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XUM

SERUM TREATMENT OF PNEUMONIA.*

C. P. JONES, JR., M.D.,
Newport News, Virginia.

Today I shall endeavor to bring to your attention the current trends in the treatment of pneumonia by specific serum. The average practitioner sees twelve to fifteen cases per year—enough to warrant attention from each and every one. I shall not go into the diagnosis or physical signs or even the necessary auxiliary medical care but shall discuss one specific measure.

Pneumonia, today, for some unexplained reason, is on the increase. In 1933, according to statistics of the Metropolitan Life Insurance Co., the death rate was 62.5 per 100,000, in 1936, it had risen to 69.8 per 100,000. In Virginia we have yearly 182 cases per 100,000, and in North Carolina 186 cases per 100,000. Pneumonia out-ranks any other infectious disease as the cause of death to our population.

CAUSES OF DEATH PER 100,000—1936

Pneumonia	69.8
Tuberculosis	54.2
Influenza	14.6
Lues	11.6

Pneumonia is more fatal to negro males than white males, and more fatal to negro females than to white females. In regard to age incidence, 75 per cent of pneumonia occurs below the age of sixty-five years.

In 1913, Cole brought forth the first specific serum for type I pneumonia. This was an unconcentrated horse serum, several hundred cc. per dose being necessary. Felton, in 1924, produced a refined anti-pneumococcic serum which was ten-fold more concentrated than Cole's original serum. Since 1924, further advances have been made, until today we have a highly refined and concentrated product.

Today the administration of the serum is not a whim of the doctor but a direct obligation which he owes the patient, who intrusts his life and welfare in the doctor's hands. Administration of the serum is for the young and old, weak and strong. *It is not limited to specific cases* depending entirely on the clinical picture, for we all know how the course can change in only a few hours.

*Read before the Seaboard Medical Association of Virginia and North Carolina, at Virginia Beach, Va., December 7-9, 1937.

Every patient should be typed early. The earlier the administration of serum the better the results, the less amount of serum required, and the quicker the recovery. Routine administration of serum may sound unnecessary and extravagant, but statistics show the necessity of early and universal administration. Some clinicians argue that every patient is not appreciably benefited from routine administration of serum to warrant the expense. But, how may we prognosticate better the course of a patient who has had serum in comparison to one who has not, than to review the controls (non-serum) in comparison to the serum treated cases.

When we make the statement that proper serum treatment saves lives, let us take some statistics for type I:

	Mortality
In non-serum cases there is a	25 %
Cases treated with serum on the fifth day or later	18.4%
Cases treated before the fifth day	8.8%
Cases treated on the first day	5.0%

To reduce mortality from 25 per cent to 5 per cent is a result that pleases us all. I wish to emphasize that the earlier the serum is given the better are the results obtained. Further statistics that go to prove this point are as follows:

IN NEW YORK (EXCLUSIVE OF NEW YORK CITY)
January, 1936—August, 1937

TYPE I

	Cases	Mortality
Serum given before fifth day	1,163	13.8%
Serum given fifth day or later	432	25.9%
	1,595	17.1%

Results of the Connecticut Pneumonia Control Program and the Control Programs of Maine and Massachusetts further verifies the above figures.

IN CONNECTICUT
1930-1936 (the majority being treated in 1935-1936)

TYPE I

	Cases	Mortality
Serum given before the fifth day	200	11.0%
Serum given fifth day or later	39	46.2%
	239	16.7%

TYPE II		
Serum given before the fifth day	50	16.0%
Serum given fifth day or later	13	38.5%
	63	20.6%

IN MAINE
JANUARY, 1936—AUGUST, 1937

TYPE I		
Serum given before fifth day	72	5.5%
Serum given fifth day or later	7	71.4%
Onset not determined	14	14.3%
	93	11.6%
TYPE II		
Serum given before fifth day	25	4.0%
Serum given fifth day or later	3	33.3%
Onset not determined	7	38.6%
	35	11.5%

IN MASSACHUSETTS
January, 1931—June, 1937

TYPE I		
Serum given before fifth day	1,014	14.1%
Serum given fifth day or later	141	28.4%
	1,155	15.8%
TYPE II		
Serum given before fifth day	272	22.1%
Serum given fifth day or later	40	37.5%
	312	24.0%

Bullowa reports from his series at Harlem Hospital, on Type I, that the percentage of fatality was:

	Non-serum	Serum
Bacteremic patients	83.3%	43.3%
Non-bacteremic patients (control)	17.0%	6.5%

(No statistics as to the day the serum was given.)

The bacterial flora causing pneumonia shows in the 2000 cases studied of lobar pneumonia the following percentage of incidence:

Pneumococcus	95.65%
Strep. Hem.	3.8 %
Pneu. Bac. of Friedländer	.4 %
Strep. Aureus	.1 %
Hem. Influenza	.03%

The classification of the types of pneumonia in percentage, as given by Jerome Natt, M. D., of Roanoke, Va., is as follows:

Type	Lobar	Broncho
I	35%	5%
II	25%	5%
III	10%	
V	7.5%	
VII	8%	90%
VIII	8%	

Statistics showing the effect of serum on the different types of lobar pneumonia:

PERCENTAGE OF MORTALITY

Type	Non-Serum	Serum
I	30%	10%
II	45%	25%
III	50%	--
IV	20%	8%
V	20%	7%
VI	16%	5%
VII	17%	7%
VIII	15%	10%
XIV	17%	7%
Remainder	20%	20%
	30%	18%

It is estimated that there will be in a fiscal year 89,000 cases of type I and type II pneumonia; without serum 32,000 will die; with serum 14,000 will die—a saving of approximately 18,000 lives in types I and II alone. Lobar pneumonia in adults is nearly always due to the pneumococcus, of which 77 per cent, or about 150,000 cases, in the United States annually may be serum treated. In broncho-pneumonia of adults, according to Dr. Finland (Boston City Hospital), about half are pneumococcus pneumonias, of which 40 per cent or about 25,000 cases, annually may be serum treated—with a saving of 31,500 lives in both groups which are now needlessly lost. Dr. R. L. Cecil believes that the death rate is cut approximately one-sixth the standard death rate of type I pneumonia with serum, in first day administration.

Before the *serum* may be *given,* one must *type* the *patient.* This is carried out by one of two methods—the mouse method, or the Neufeld method.

The Mouse Method: One-half cc. of sputum, which has been washed in physiological saline, is injected into the peritoneal cavity of a mouse. After a period of twelve hours the peritoneal exudate is agglutinated against known type of anti-serum.

The Neufeld Method: This method can be carried out immediately in the doctor's office, and the results read immediately after a period of ten minutes. Rabbit anti-pneumococcic serum and methylene blue are contained in a capillary tube that comes prepared ready for use. The serum and stain are added to a loop full of washed sputum. This is examined on a glass slide under a cover slip. It is best to examine this slide under oil emersion lens. A swelling of the capsule is diagnostic. By beginning with a known anti-pneumococci rabbit serum one can, with rapid elimination, arrive at the specific type.

XUM

Statistics go to prove definitely the benefit of using serum in treating pneumonia. Every day the pharmaceutical houses are giving us a more potent, highly concentrated serum, as free as is possible up to the present time of any untoward effects. However, in the administration of any serum we must not go blindly along and fail to consider the allergic component of our patient. A severe serum reaction *per se* can be fatal immediately, or a few hours or days later from its devitalizing effect.

After the patient has been typed, a detailed and careful history must be taken as to the sensitivity to horse serum, allergy to horses, fur, foods, or any strange unexplained attacks of asthma, or hayfever that may be due to an allergy. If the patient is too ill, the same history, as near as is humanly possible, should be obtained from the nearest relative or responsible party having the information. If one's findings are negative, then it is safe to proceed to the conjunctival test. This test is more sensitive than the skin test. On several occasions it has been noted by various authors that there is an absolutely negative skin reaction but quite a positive conjuctival reaction. The conjunctival test is made with the dilution of 1-10 horse serum. If for any reason the history causes suspicion, I would advise the use of smaller doses. After a negative conjunctival test, wait for a period of ten minutes and then proceed with the skin test. The procedure here is the same that is used in making any skin test.

Pneumonia serum is best given intravenously, and it is for this reason that careful testing for susceptibility must be done. Any sign of sensitivity along the procedure is a definite indication to postpone further treatment until desensitization of the patient may be carried out by multiple small doses. One should have on hand for immediate use an ampule of 1-5000 solution of adrenalin chloride—to be used at the first sign of anti-prophylactic shock. It would be advisable, in the administration of the serum, if there is for any reason a definite appearance of sensitivity, or in cases of recently desensitized patients, or even cases of patients who have had a recent foreign body injection, to give the first dose intramuscularly in an extremity so that delayed absorption may be obtained by the use of a tourniquet.

Some authors prefer to give the initial dose, in cases of no unfavorable reaction, in divided doses, i. e., 5 cc. for the first injection, followed in two hours with the remainder of the dose. Personally, I dilute the serum by starting an intravenous with normal saline, sponging off the tubing of the intravenous set, and injecting the serum into this. In this way, I have greater dilution and a slower intravenous administration. About 20,000 units is considered a sufficient dose for one treatment. The serum should be repeated every four hours until signs and symptoms indicate a termination of the procedure. An intravenous injection is like a spinal anesthetic: it cannot be withdrawn. The type of serum to be used is determined by typing.

The leucocyte count, blood culture, X-ray picture, temperature and general systemic reaction and response determine the continuation or discontinuation of the serum. In regard to the leucocytic count, under 10,000 and above 30,000 will warrant continuation of the serum. In the hospital daily blood counts are advisable. A positive blood culture in the face of an overwhelming toxicity warrants continuation of the serum. The absence of agglutinins as well as large areas involved in the lung field, as shown by X-ray examination, warrants the continuation of the serum. The drop of the temperature to normal, a fall in the pulse rate of the patient, and an improvement in the general condition is the only clinical picture that the country practitioner has at hand.

There are two methods of serum dosage administration: First, the multiple unit dose, which consists of 20,000 units every four hours. Second, the single average dose of 100,000 units within two hours. In cases of bacteremia, according to Finland, the dose may run as high as 300,000 to 500,000 units, or such doses as one finds necessary to clear the blood stream of a positive culture.

What may be expected in the general condition of the patient and in the lung field after the administration of the serum? The serum in sufficient doses first of all reduces the mortality, clears the blood stream, lessens the toxicity, hinders the development of complications, and reduces the number of days of illness by three to four days. Only on rare occasions do we see an extension to other lobes and this can be taken care of by further administration of the serum in the majority of cases.

In the affected portions of the lung resolution is hastened. However, in the cases in which the disease has progressed to hepatization of the lung, with or without serum, there is no increase in clearing up

of the lung field, as this process depends upon the natural reparative processes of the body.

I shall report one case which I believe to be typical of the results that one may obtain from serum administration in the home. The patient lived three miles off the main highway, ten miles from my office. He was sixty miles from Charlottesville and forty miles from Clifton Forge.

Case: Mr. E.T., white male, age nineteen years, good nutrition, past history negative. On April 10, 1937, when I was called to see the patient for the first time, he was complaining of generalized pain and aching with headache. Physical examination at the time revealed no definite pathology, and a tentative diagnosis of influenza was made. I ordered him to bed, gave some influenza capsules, and instructed him to force fluids. On the next day, the eleventh, a recheck of his lung field still showed no pathology or any signs of developing pneumonia. Monday, the twelfth, at 9:00 P. M., the family phoned me that the patient was spitting blood. A diagnosis of pneumonia was made at this time. Examination revealed rales and beginning consolidation in the lower left chest, and a temperature of 101.5. At 11:00 A. M. the next day he had numerous consolidated areas of both lower lobes, was quite toxic and delirious, and had a respiration in the high thirties. In general, the picture gave a poor outlook for so early in the case. His toxic condition was the most alarming feature. We sent some sputum to Charlottesville by fast auto and had it typed, procured the serum from the University of Virginia, and started the administration at 8:00 P. M. the same day. This case was type I pneumonia. At the time of the administration the temperature was 104.3, respiration 30, pulse 120. The serum was repeated every four hours. The dosage used in this case was 20,000 units at a time, three doses being given, totaling 60,000 units in all. (We were only able to obtain 60,000 units). At twelve midnight of the fifteenth the temperature was 98, respiration 18, and pulse 80. On the sixteenth, for one reading, the temperature went as high as 100.4 and on the two subsequent readings in the evening it went as high as 99. After the twentieth the temperature remained normal. In about ten days from the beginning of the illness the lung field cleared to approximately normal and the patient made an uneventful recovery.

The serum produced an artificial crisis in this case, reduced the toxicity, cleansed the blood stream and prevented further extension of the process. I cite this case to show our almost unsurmountable difficulties in obtaining serum, having to send sixty miles for it and thirty-five miles for nurses, all of which had to be accomplished in a period of a few hours. I believe this to be typical in country practice. The serum, I firmly believe, saved this boy's life. We all will have like cases, and we all can have the chance of obtaining such favorable results. Our paths would be made easier if our State Department of Health had typing stations where it would be a matter of an hour or two by automobile to obtain the serum and typing service.

The State of Virginia has recently taken steps to organize a pneumonia control program, and an attempt will be made to get an appropriation from the Legislature this coming session.

The general supporting treatment for pneumonia has remained practically the same for half a century. The advent of serum makes it the primary-immediate treatment, which should be considered as of equal importance to a surgical emergency.

SUMMARY AND CONCLUSION

1. Serum has been developed and is commercially available for types I, II, IV, V, VI, VII, XIV pneumonia. The fatality in pneumonia has been reduced from the general average of 30 per cent to 18 per cent. These figures include type III pneumonia, of which the fatality is over 50 per cent, and the higher types for which we have no commercial serum.

2. 31,500 lives a year may be saved with adequate serum treatment.

3. The serum, besides reducing mortality, brings on an early artificial crisis, clears the blood stream, reduces toxicity, inhibits further extension and complications, and reduces the period of illness from three to four days.

4. Serum administration during the first twenty-four hours is the optimum time. The best therapeutic effects result, decreasing by a multiple each twenty-four hour delay. By universal early typing and early administration, we can save a further large percentage of cases who die under serum treatment because of delayed administration.

5. With greater facilities for typing stations and available serum, it will become the direct obligation on the part of the physician to type all of his pneumonia patients.

XUM

Since reading this paper, further advances have been made in the preparation of serum. We may reasonably expect serum for all types, including type III, within the next six months. Extensive experiments are being carried on now with an attempt to replace horse serum with rabbit serum.

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3117 West Avenue.

TREATMENT OF ABORTION.*

RUSSELL VON LEHN BUXTON, M.D.,
Newport News, Virginia.

The fact that there are over 600,000 abortions annually in this country[1] and that one out of four pregnancies ends in abortion[2] means that almost every physician sees at least one case of abortion during each year. This alone is sufficient reason to bring up the subject of the treatment of abortion but when one considers that approximately 10,000 of these cases end in death yearly[3], it is mandatory that every physician keep abreast of the times upon such an important subject.

Before the details of the treatment of abortion are considered, it is advisable to bring to your attention the generally accepted classification of abortion, in order that there may be no misunderstanding in regard to definitions.

The word abortion means the detachment or expulsion of the previable ovum and is synonymous with the term miscarriage. In the pathological classification, threatened abortion is placed first, and in this type there is a partial separation of the placenta from its attachment to the uterine wall. Its symptomatology includes vaginal bleeding and cramplike lower abdominal pains, associated with uterine contractions. If these symptoms continue and become more pronounced, and if, upon pelvic examination, the cervix of the uterus is found to be dilated, the threatened abortion is then considered inevitable until any part of the foetus, placenta or membranes is passed when the term incomplete abortion is applied. If the uterus expels its contents, the abortion is known as complete[4]. If the foetus dies and the ovisac is retained for a variable length of time, the condition is known as missed abortion. This type of abortion is so rare that its treatment will not be discussed[5]. Also, since there is so much controversy concerning the subject, the treatment of habitual abortion is omitted.

In addition to the above pathological classification, abortions are also classified as to etiology, and an abortion is called spontaneous if occurring without apparent cause. If, however, the abortion is brought on by external trauma, by medication or by intrauterine manipulation, it is known as an induced abortion. An induced abortion is therapeutic if done in order to preserve the life or health of the mother, but it is known as a criminal abortion if self-induced or if it is brought on without therapeutic justification.

Abortions are also classified by their post-abortal course, and if the convalescence is without fever, the abortion is called afebrile. If, on the other hand, the patient has a temperature elevation, the abortion is termed infected or septic.

In discussing the treatment of the foregoing conditions, there is almost complete unanimity of opinion upon the treatment of threatened abortion and it is as follows:

After a gentle pelvic examination is made to con-

*Read before the Seaboard Medical Association of Virginia and North Carolina at Virginia Beach, Va., December 7, 1937.

firm the diagnosis, the patient is placed in bed and given a soft diet. Rest, physical and mental, is insured by the use of adequate amounts of morphine or codeine. The use of any cathartic is forbidden, though low enemata and mineral oil may be given if necessary. After the original pelvic examination, no more are made unless a change in the condition of the patient warrants re-examination. The patient is kept in bed until all symptoms have been absent for at least four days. She is then allowed up, and if vaginal bleeding does not recur, she may cautiously resume her ordinary activities.

In the fortunate case, there is no recurrence of symptoms, and the pregnancy proceeds normally. The most usual occurrence, however, is that the bleeding and cramps continue and the cervix becomes dilated and the abortion becomes inevitable. The plan of attack then changes, and every effort is made to hasten the evacuation of the uterus. This may be accomplished by the intramuscular use of pituitrin and by the oral or intravenous use of a suitable ergot preparation. This medication is usually sufficient to cause completion of the abortion, but if hemorrhage becomes alarming, the uterus must be emptied surgically under aseptic conditions without delay. It may be necessary to pack the vagina if circumstances do not permit surgical evacuation. Plain sterile gauze should be introduced into the vagina under aseptic conditions in a quantity sufficient to control bleeding, and should be removed within twenty-four hours.

A similar plan of treatment is followed in the uncomplicated or afebrile cases of incomplete abortion. That is, the patient is placed in bed in semi-Fowler position and given oxytocic drugs, unless excessive bleeding occurs, when the uterus is evacuated surgically after it is certain that no infection is present. If there is no hemorrhage, the uterus may or may not be emptied surgically according to the condition of the patient. In either case, if there is no bleeding after five days, it is permissible to allow the patient up, and she may be discharged shortly thereafter.

Since the terms spontaneous and induced are applied to abortions only to denote their etiology, there is no need to mention specific forms of treatment in these types. It should always be borne in mind, however, that all cases of criminally induced abortion are considered septic and are treated as such until proven otherwise. It is also worth while to note that a patient may be febrile, or afebrile, with any of the foregoing types of abortion, but any patient with an abortion who has chills and fever, or fever alone, is considered to be septic and the treatment is that of septic abortion.

In cases of septic abortion, there is some difference of opinion as to whether active treatment is preferable to expectant treatment. The question is not whether radical or conservative measures should be employed, but the problem is when to be conservative and when to be radical. In order to decide which course is proper no set rule should be followed, but each case of abortion should be individualized so that the patient may receive the proper care.

If it is necessary to define septic abortion—first, are included all criminally induced abortions; secondly, any abortion followed by a chill, and, thirdly, any abortion with which the patient has a fever. The following routine is customary when a patient is seen who is suspected of having a septic abortion. An adequate history is taken, special effort being made to ascertain the etiology of the abortion, and then a physical examination is made. Following this, the patient is prepared for pelvic examination by shaving the pubic hair, and scrubbing the external genitalia and surrounding skin with tincture of green soap and sterile water, followed by a one-half of 1 per cent lysol solution. The examiner then scrubs his hands thoroughly and dons sterile gloves, and makes a gentle bimanual pelvic examination. It is important that during the examination the amount and character of uterine drainage should be noted, as well as the size of the fundus of the uterus, thickening of the adnexae and dilatation of the cervical os. If the retained secundines are lying in the vagina or if they can be seen in a widely dilated cervical canal, it is best to remove these tissues immediately with placental forceps. It is strictly forbidden to curet or examine the interior of an infected uterus[6], and if the uterine cervix is not dilated, the treatment differs from the foregoing outline and is considered below.

In those cases, in which there is definite evidence of infection, as shown by history of instrumentation, by chill, by fever, or by palpation of an adnexal mass, and if the cervical os is found to be undilated, and if hemorrhage is slight, the following routine is indicated: The patient is placed in bed in semi-Fowler position, on a liquid diet, with an ice-bag to the abdomen, is given 1 cc. of pituitrin intramuscularly and 4 cc. fluid extract of ergot orally every

four hours, and sedatives as necessary. This regimé is continued until the patient's temperature remains normal for five days. At this time, if vaginal bleeding has ceased, the patient is allowed up for two days, and if all is well she is then discharged. On the other hand, if vaginal bleeding continues or recurs, the patient is prepared for operation and under nitrous-oxide-oxygen anaesthesia, is placed in the lithotomy position and the vulva cleansed with green soap and water and 70 per cent alcohol. The cervix is gently dilated until it is possible to insert placental forceps and remove the residual tissue with the minimum of trauma. The curet is not used, but the interior of the uterus is swabbed with a gauze sponge soaked in 3½ per cent tincture of iodine. After this is done, the uterus is packed with plain gauze which is removed in twenty-four hours. The patient remains in bed for five days and then is discharged.

The sequelae of septic abortion include parametritis, pelvic abscess, generalized peritonitis and septicemia. Perforation of the uterus is not a true complication of abortion, but it may occur during induction of an abortion or curettage for post-abortal bleeding, and is generally followed by abscess formation or general peritonitis.

In cases which develop parametritis following abortion, the policy of watchful waiting is advocated. It is essential that pelvic examinations be made rarely and with extreme gentleness[7]. Surgical treatment is contraindicated except when there is violent hemorrhage, and an attempt is first made to control bleeding by using pituitrin and ergot. Packing the vagina is avoided since it will not control the hemorrhage, and if uterine packing is attempted it is just as wise to remove the offending tissue at that time. Otherwise, the patient remains in bed until temperature is normal, and is then discharged.

If localization of the infection occurs and a pelvic abscess forms, a posterior colpotomy is done, a "T" tube is inserted, and the "T" tube remains in place until drainage ceases and the patient's temperature remains normal. The patient may then be discharged.

If there are any signs of spread of infection to the general peritoneal cavity, it is important that this complication be recognized early and that its treatment be started immediately. The patient is placed in semi-Fowler position, and in order to combat intestinal stasis with subsequent distention, a nasal tube is placed into the stomach or duodenum and continuous suction applied in the manner popularized by Wangensteen. As long as this tube is in place and functioning properly the patient is allowed to have clear liquids. Hot turpentine stupes are placed upon the abdomen at regular intervals. A rectal tube is inserted and prostigmin or pituitrin may also be used to control distention. In order to prevent dehydration of the patient, a 5 per cent solution of glucose in physiological saline solution is given continuously by vein. (It is more comfortable for the patient if the intravenous cannula is inserted into a leg vein rather than elsewhere). Small blood transfusions repeated every few days are of benefit in combating toxemia and anemia. Enterostomy is of no value for the relief of distention in these cases, as the distention is due to paralytic ileus. For no reason should the uterus be emptied after the patient has developed generalized peritonitis. The treatment of peritonitis following abortion, therefore, resolves itself into the treatment of paralytic ileus and toxemia without regarding the abortion.

If the blood culture, which should be taken routinely on every patient, shows that organisms are present in the blood stream, measures should be taken to combat septicemia. Sulfanilamide is apparently a specific for treatment of this complication, and it is to be hoped that the future will show that its use is as good as present reports indicate[8]. If used, sulfanilamide should be given in large doses—eighty to 120 grains in first twenty-four hours, and half this dose the next day, and a maintenance dose of thirty grains may then be given. Repeated blood transfusions also have a place in the treatment of septicemia and the immuno-transfusion, as advocated by Crocker *et al.*[9], is especially useful. The patient may also be given fluids intravenously if necessary, and other supportive treatment is supplied as needed.

SUMMARY

1. There are 10,000 deaths from abortion annually in this country.

2. A classification of abortion is given.

3. The generally accepted treatment of threatened and inevitable abortion is outlined.

4. The necessity for individualization of treatment in cases of septic abortion is stressed.

5. The sequelae of septic abortion are noted and suggestions for treatment made.

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Buxton Clinic.

SOCIALIZED MEDICINE.*

J. E. RAWLS, M.D.,
Suffolk, Virginia.

In principle, as I understand it, "Socialized Medicine" is not new. Wherever State or Government ownership manifests itself the principle is found. This is true in trade, industry or profession. The principle is Utopian and Ideal.

An Ideal is a thing to be striven for, but not to be attained. The question for us to decide as an individual or as a nation is how shall this ideal be attained. Shall it be attained by evolution or by revolution? The first is constructive and the latter is destructive.

The goal in life either for an individual or for a Government should not be the ideal or perfection, but should be the means by which the ideal or perfection may be attained. The foundation for the ideal or perfection must be built before the ideal or perfection is reached.

The poor widow mother was once asked how did she rear such an ideal son. She said that she did it by first appealing to his sense of *pride* and then, if it were necessary, to his sense of *hide*. A most profound and wonderful truth—*pride* representing an education of duty, sobriety, justice and right, and *hide* representing enforcement, law and punishment.

Probably a just criticism could be made of our Government in her attempt to make us ideal citizens and that criticism would be that our Government spends too much effort and time with our *hide* and too little time with our *pride*.

The United States has appropriated within the past few months a billion and two hundred million of dollars for national defense to save our *hide*. Would it not be reasonable and wise to take at least two hundred million or one-sixth of this twelve hundred million and put on a nation-wide educational program appealing to their sense of *pride*—teaching her citizens sobriety, duty, justice and righteousness—a universal religion or philosophy that knows no creeds, no clans, no races nor nations? *This would be the climax of a national defense.*

Our national educational system emphasizes creation rather than the creator—physical rather than meta-physical, which is greatly pagan. Religion is divorced from our system of education so far as public sentiment is concerned. Would it not be wise and well for us as a nation to introduce into our system of education a philosophy of sobriety, duty, justice and righteousness—man's true relation to man—and emphasize this to the nth degree? Then our Government would be in a better position to advise, absorb and possess.

What has this to do with "Socialized Medicine"? It has everything to do with it.

It is true that our present system of medical practice is imperfect and improvement is desired. The same can be said of law or any other profession or trade. How shall this improvement be brought about? This is the question that is now agitating the public mind and there are many proposed solutions.

The Government has confidence in the medical profession, which is shown by her citizens placing the life of the sick and the maimed in the hands of her physicians. Shall not more confidence of the

*Brief of address given by Dr. Rawls, on invitation, August 18, 1938, before the Suffolk Rotary Club, of which he is a member.

Government be manifested by inspiring and helping the medical profession to do even greater and more perfect work, or shall the Government say to the profession "We have lost confidence in your ability to serve the sick of the public, so we, the lawmakers of the Government, who are absolutely ignorant of medicine and the practice of same, are going to take charge of it and say to the members of the profession where to go and where not to go—where to get on and where to get off."

The Government will tell you that this branch of work will be under the supervision of members of the medical profession. Yes, this may be true, but it will be a political body and, when you have to acknowledge this, you have branded it with contention and inefficiency.

The medical profession, so far as I know, gladly and gratefully welcomes any Federal help or contributions in the way of public health units and the like, but the profession feels that "Socialized Medicine" is presumptuous and would result in medical or professional inefficiency and an increase in human suffering under the present Government's growth, development and capacity.

Public Health Statistics

I. C. RIGGIN, M. D.,
State Health Commissioner of Virginia.

The report of the State Health Department's bureau of communicable diseases, as compiled for the month of August, shows the following cases compared with the same month in 1937.

	1938	*1937*
Typhoid and Paratyphoid	55	117
Diphtheria	74	71
Scarlet Fever	32	30
Measles	109	61
Meningitis	2	14
Poliomyelitis	10	11
Rocky Mountain Spotted Fever	8	15
Typhus Fever	1	0

VIRGINIA STILLBIRTHS: 1936-1937

The Virginia bureau of vital statistics is interested in securing more complete and accurate information on the causes of stillbirths, believing that when these causes are better known, and as physicians become more interested in the study of them, more loss of life before birth may be prevented.

The Bureau desires to express to the physicians of the State its appreciation of their interest in the subject, and to thank them for their splendid cooperation in furnishing information during the years 1936 and 1937. The number of stillbirths decreased during that period from 2,248 to 2,202, but the number reported with no designated cause decreased from 602 to 376.

Conditions affecting the mothers on the whole show but little change, namely from 1,125 to 1,120, but deaths due to abortions and prematurity decreased from 703 to 496, due to more accurate assignment of the primary causes leading to them. For the same reason syphilis increased from 69 to 117 and general and infectious diseases from 35 to 105. The increase of traumatism and overwork from 95 to 155 is due to the attempt of midwives to assign a cause on the new yellow stillbirth form, this being an appealing cause to them. This attempt is welcomed, however. In these preliminary studies the bureau desires to learn just what is in the minds of the attendants. It is hoped that this study will result in the adoption of an American-Canadian list of causes. This list is more scientific than the one compiled by Virginia.

It is hoped that the interest of physicians will continue and increase and that future compilations will become more and more accurate.

Since the causes of many stillbirths and neonatal deaths are the same, birth injuries and syphilis as examples, the study of the two should be along the same lines.

CAUSES OF STILLBIRTH: VIRGINIA

	1936	*1937*
I. CONDITIONS AFFECTING THE MOTHER	1,125	1,120
Abortion, premature birth	703	496
Eclampsia and toxemia	111	109
Syphilis	69	117
General and other infectious diseases	35	105
Traumatism and overwork	94	155
Difficult and prolonged labor	94	111
Uterine conditions	9	21
Other conditions of mother	10	6
II. CONDITIONS AFFECTING THE CHILD	521	706
Placenta (disease and accident)	145	158
Abnormalities of cord	117	161
Malpresentation	74	174
Malformation	66	74
Deaths in utero	50	87
Birth injury	38	11
Asphyxia of child	28	22
Other conditions of child	3	19

Presidents and Places of Meetings of the Medical Society of Virginia

PRESIDENT	PLACE OF MEETING	YEAR OF MEETING
*Dr. R. S. Payne, Lynchburg	Richmond	1870
*Dr. R. S. Payne, Lynchburg	Lynchburg	1871
*Dr. A. M. Fauntleroy, Staunton	Staunton	1872
*Dr. Harvey Black, Blacksburg	Norfolk	1873
*Dr. A. G. Tebault, London Bridge	Abingdon	1874
*Dr. S. C. Gleaves, Wytheville	Richmond	1875
*Dr. F. D. Cunningham, Richmond	Charlottesville	1876
*Dr. J. L. Cabell, University	Petersburg	1877
*Dr. J. H. Claiborne, Petersburg	Richmond	1878
*Dr. L. S. Joynes, Richmond	Alexandria	1879
*Dr. Henry Latham, Lynchburg	Danville	1880
*Dr. Hunter McGuire, Richmond	Old Point Comfort	1881
*Dr. G. W. Semple, Hampton	Fauquier White Sulphur Springs	1882
*Dr. W. D. Cooper, Morrisville	Rockbridge Alum Springs	1883
*Dr. J. E. Chancellor, Charlottesville	Rawley Springs	1884
*Dr. S. K. Jackson, Norfolk	Alleghany Springs	1885
*Dr. Rawley W. Martin, Chatham	Fredericksburg	1886
*Dr. Bedford Brown, Alexandria	Richmond	1887
*Dr. Benjamin Blackford, Lynchburg	Norfolk	1888
*Dr. E. W. Row, Orange C. H.	Roanoke	1889
*Dr. Oscar Wiley, Salem	Rockbridge Alum Springs	1890
*Dr. W. W. Parker, Richmond	Lynchburg	1891
*Dr. H. Grey Latham, Lynchburg	Alleghany Springs	1892
*Dr. Herbert M. Nash, Norfolk	Charlottesville	1893
*Dr. Wm. P. McGuire, Winchester	Richmond	1894
*Dr. Robt. J. Preston, Abingdon	Wytheville	1895
*Dr. Wm. L. Robinson, Danville	Rockbridge Alum Springs	1896
*Dr. Geo. Ben Johnston, Richmond	Hot Springs	1897
*Dr. Lewis E. Harvie, Danville	Virginia Beach	1898
*Dr. Jacob Michaux, Richmond	Richmond	1899
*Dr. Hugh T. Nelson, Charlottesville	Charlottesville	1900
*Dr. J. R. Gildersleeve, Tazewell	Lynchburg	1901
*Dr. R. S. Martin, Stuart	Newport News	1902
*Dr. J. N. Upshur, Richmond	Roanoke	1903
*Dr. Joseph A. Gale, Roanoke	Richmond	1904
*Dr. Wm. S. Christian, Urbanna	Norfolk	1905
Dr. Lomax Gwathmey, Norfolk	Charlottesville	1906
Dr. Paul B. Barringer, Charlottesville	Chase City	1907
*Dr. Wm. F. Drewry, Petersburg	Richmond	1908
Dr. Stuart McGuire, Richmond	Roanoke	1909
*Dr. E. T. Brady, Abingdon	Norfolk	1910
*Dr. O. C. Wright, Jarratt	Richmond	1911
*Dr. Hugh M. Taylor, Richmond	Norfolk	1912
*Dr. Southgate Leigh, Norfolk	Lynchburg	1913
*Dr. Stephen Harnsberger, Catlett	Washington, D. C.	1914
*Dr. Samuel Lile, Lynchburg	Richmond	1915
Dr. Joseph A. White, Richmond	Norfolk	1916
Dr. Geo. A. Stover, South Boston	Roanoke	1917
*Dr. E. G. Williams, Richmond	Richmond	1919†
*Dr. Paulus A. Irving, Farmville	Petersburg	1920
*Dr. Alfred L. Gray, Richmond	Lynchburg	1921
*Dr. E. C. S. Taliaferro, Norfolk	Norfolk	1922
*Dr. John Staige Davis, University	Roanoke	1923
*Dr. W. W. Chaffin, Pulaski	Staunton	1924
Dr. Hunter H. McGuire, Winchester	Richmond	1925
Dr. W. L. Harris, Norfolk	Norfolk	1926
Dr. J. Shelton Horsley, Richmond	Petersburg	1927
Dr. J. W. Preston, Roanoke	Danville	1928
Dr. J. Bolling Jones, Petersburg	Charlottesville	1929
*Dr. Charles R. Grandy, Norfolk	Norfolk	1930
*Dr. J. Allison Hodges, Richmond	Roanoke	1931
Dr. I. C. Harrison, Danville	Richmond	1932
Dr. J. C. Flippin, University	Lynchburg	1933
Dr. R. D. Bates, Newtown	Alexandria	1934
Dr. F. H. Smith, Abingdon	Norfolk	1935
Dr. P. St. L. Moncure, Norfolk	Staunton	1936
Dr. J. M. Hutcheson, Richmond	Roanoke	1937
Dr. G. F. Simpson, Purcellville	Danville	1938

*Deceased.
†Owing to influenza epidemic and World War, meeting not held in 1918, and Dr. Williams continued as President.

Woman's Auxiliary to the Medical Society of Virginia

President—MRS. JAMES B. STONE, 15 Maxwell Road, Richmond.
President-Elect—MRS. HAWES CAMPBELL, Venter.
Corresponding Secretary—MRS. LAWRENCE O. SNEAD, 5307 New Kent Road, Richmond.
Recording Secretary—MRS. JAMES K. HALL, 3011 Seminary Avenue, Richmond.
Treasurer—MRS. REUBEN F. SIMMS, 2502 Hawthorne Avenue, Richmond.
Chairman of Publicity—MRS. FRED J. WAMPLER, 4103 Forest Hill Avenue, Richmond.

Message from the President.

DEAR AUXILIARY MEMBERS:

My year of service as your President is fast drawing to a close. If it were possible I should like at this time to write to each of you personally. Since I cannot do this, I am taking advantage of the last issue of the VIRGINIA MEDICAL MONTHLY under my administration to express to you my gratitude for your cooperation and helpfulness this year. I, alone, could have achieved very little. It is because of the assistance that I have had from Officers, Chairmen, and all Auxiliary Workers that the Virginia Auxiliary completes another successful year!

We have accomplished much, but we have much yet to accomplish. The passing of our Sixteenth Milestone means only the changing of an administration along the Road of Service.

My wish, on turning over the leadership to another, is that we may all continue on this Road together in the future, adding new recruits, and establishing new records along the way.

Faithfully yours,
JANET WATKINS STONE.

To the Local Auxiliaries:

This is the last month I shall serve you as Press and Publicity Chairman and I want to thank you for your cooperation and to tell you that the success of the Auxiliary Page this year has been due to you and not to your chairman. I have appreciated very much your loyalty and promptness, and am sure you will give my successor the same excellent cooperation you have given me.

I wish, also, to thank the State President for her suggestions and contributions to the page, and am very grateful to Miss Edwards for her courtesy at all times.

With best wishes for the continual growth of each local Auxiliary and the further development of the work of the State Auxiliary, I am

Very sincerely,
(MRS. FRED J.) REBECCA C. WAMPLER,
Chairman, Press and Publicity.

The Southern Meeting.

The Fifteenth Annual Meeting of the Woman's Auxiliary to the Southern Medical Association will be held in Oklahoma City, November 15 through 18. A cordial invitation has been extended to all members and friends of the Virginia Auxiliary to attend this meeting.

New Members

New members of the Medical Society of Virginia since the list published in the May 1938 issue of the MONTHLY are:

Dr. William Eugene Apperson, Sanatorium.
Dr. Q. H. Barney, Altavista.
Dr. Garvey Bruce Bowers, Stonega.
Dr. William Fielding Bryce, Richmond.
Dr. William Stone Burton, Powhatan
Dr. George Robert Carpenter, Norton.
Dr. Ernest Lee Copley, Richmond.
Dr. Howard Lee Dean, Radford.
Dr. Edward V. Famiglietti, Grundy.
Dr. Elliott Dennis Floyd, Norfolk.
Dr. Malcolm D. Foster, Standardsville.
Dr. Leo I. Hallay, McClure.
Dr. Charles Calhoun Hedges, Suffolk.
Dr. Paul Hogg, Newport News.
Dr. M. L. Holland, Roanoke.
Dr. Claude Gibson Hooten, Lynchburg.
Dr, William H. Howard, Hampton.
Dr. Samuel Walter Huddle, Rural Retreat.
Dr. Harry Gilman Hudnall, Covington.
Dr. David Clyde Keister, Osaka.
Dr. Edmund Moseley La Prade, Richmond.
Dr. Marion S. Love, Washington, D. C.
Dr. J. Rollins McGriff, Arlington.
Dr. Nowell Darden Nelms, Mathews.
Dr. Melvin Roy Nicholson, Arlington.
Dr. William Oscar Pollard, Speers Ferry.
Dr. Grover Dewitt Rackley, Richlands.
Dr. Alexander Stuart Richardson, Grundy.
Dr. Guy Carson Richardson, Bristol.
Dr. Sam Silver, Waynesboro.
Dr. Richard Odell Smith, Pulaski.
Dr. Hugh Otto Staley, Splashdam.

Dr. James Franklin Waddill, Norfolk.
Dr. Thomas Watkins, Drakes Branch.
Dr. Angus Kerr Wilson, Norfolk.
Dr. I. S. Zfass, Williamsburg.
Dr. William Wallace Zimmerman, Waynesboro.

Truth About Medicine

In addition to the articles previously enumerated, the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:
Gilliland Laboratories.

Typhoid Vaccine (Gilliland), 50 cc. size package.

New and Nonofficial Remedies

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Theelin—P. D. & Co.—A brand of estrone (theelin)—N.N.R. Theelin—P. D. & Co. is marketed in the following dosage forms: Ampules Theelin Aqueous, 1 cc.; Ampules Theelin in Oil 1 cc.; Vaginal Suppositories Theelin. Parke, Davis & Co., Detroit, Mich.

Theelol—P. D. & Co.—A brand of estriol (theelol)—N.N.R. Theelol—P. D. & Co. is marketed in the following dosage forms: Kapseals Theelol, 0.16 mg., and Kapseals Theelol, 0.12 mg. Parke, Davis & Co., Detroit, Mich.

Sulfanilamide Tablets, 5 grains.—Each tablet contains sulmanilamide (New and Nonofficial Remedies, 1938, p. 450), 5 grains. Charles C. Haskell & Co., Inc., Richmond, Va. (*J. A. M. A.*, August 27, 1938, p. 784.)

Propaganda for Reform

Sodium Thiosulfate in Syphilis.—Sodium thiosulfate was popularized as a remedy for postarsphenamine dermatitis and certain other metallic poisonings by the work of McBride and Dennie in 1923. The evidence accumulated then and which has continued to accumulate as to its value in the treatment of metallic poisoning is of two varieties. Laboratory studies calculated to measure the excretion of arsenic or of certain other heavy metals in experimental animals and human beings with or without the added influence of sodium thiosulfate have been completely contradictory. The reports of the value of sodium thiosulfate in the treatment of exfoliative dermatitis, other types of arsenical treatment reactions, and in other types of skin diseases not associated with the treatment of syphilis, are, to the critical observer, as unconvincing as the laboratory work. So far as arsenical reactions are concerned, one group of observers feels that the drug is of some value largely on the basis that one or a few patients treated with it have recovered, whereas another group of observers feels that the drug is completely valueless. The drug has no spirocheticidal action and is completely without value in the treatment of syphilis. (*J. A. M. A.*, July 2, 1938, p. 84.)

Dangers of Protamine Insulins.—Reports of reactions following the use of protamine zinc insulin have appeared in considerable number. In one of the earlier discussions of protamine zinc insulin it was reported that hypoglycemia from this type is more subtle in onset and on the whole subjective symptoms are less severe than with soluble insulin. Preliminary symptoms of shakiness, sweating and palpitation may be absent; thus severe hypoglycemic symptoms may appear without warning. Ample evidence is now available that protamine zinc insulin is not a foolproof substitute for the older preparation. Although reactions to it seem to appear with less frequency, they also are often characterized by the suddenness of onset, delayed and therefore unexpected appearance, and symptoms precipitated by exercise at such a distant time as also to be wholly unexpected. Although the development of protamine zinc insulin is an advance of unquestioned value to many diabetic patients, the possibilities of delayed severe reactions canont be ignored. (*J. A. M. A.*, July 16, 1938, p. 254.)

Book Announcements

Materia Medica. Drug Administration and Prescription Writing. By OSCAR W. BETHEA, M.D., Ph.G., Ph.M., F.C.S., F.A.C.P., Professor of Clinical Medicine, Tulane School of Medicine; Professor of Therapeutics, Tulane Graduate School of Medicine; Senior Physician, Southern Baptist Hospital; etc. Philadelphia. F. A. Davis Company. 1938. Octavo of x-577 pages. Cloth. Price $5.00.

This is an interesting volume, since it lends itself as a textbook for the student of medicine, dentistry, and pharmacy. It also finds a place in the work of the graduate, especially in the practice of medicine, for there are included a number of formulas and contributions which suggest a basis of treatment in many of the various ailments of the human body with which the young physician may come in contact.

It is a sign of more than passing interest to note that the author has made this volume conform to the U. S. P. and the National Formulary.

Many proprietaries are valuable and sooner or later some of them will find their way into the U. S. P., but until proper recognition is given by authorities, whose findings can not be easily questioned, it will be wise not to give them prominent notice in a text intended largely for teaching—the detail man will take fatherly care of the graduate.

The arrangement of Part 1 with its consideration of official drugs and its prescriptions for acceptance and deductions will offer the student or graduate a lead when in doubt or in undergoing confusion.

Part 2 on Prescription Writing is brief, sane, and helpful and it should give timely help to those whose knowledge of doses, calculation of amounts, choice of a vehicle and form of administration is just a little hazy.

XUM

General information to be found in Part 2 and Part 3 and the Appendix will be of value in many phases of medical jurisprudence with which the young practitioner is not always entirely familiar.

ROSHIER W. MILLER.

Methods of Treatment. By LOGAN CLENDENING, M.D., Clinical Professor of Medicine, Medical Department of the University of Kansas; Attending Physician, University of Kansas Hospitals; etc. With Chapters on Special Subjects by H. C. Andersson, M.D.; Ursulla Brunner, R.N.; J. B. Cowherd, M.D.; Paul Gempel, M.D.; H. P. Kuhn, M.D.; Carl O. Rickter, M.G.; F. C. Neff, M.D.; E. H. Skinner, M.D.; E. R. DeWeese, M.D.; and O. R. Withers, M.D. Sixth Edition. St. Louis. The C. V. Mosby Company. 1937. Octavo of 879 pages. Illustrated. Cloth. Price $10.00.

In Methods of Treatment, the busy worker will readily secure advice and helpful suggestions.

When more time for extended reading arrives, the reader will find reward throughout the volume. It never grows stale. The clear, concise, modern and scientific presentation of the subject matter is replete with quaint humor and fine philosophy.

Ego is not in evidence. Credit for the works of others is freely given. Opposing views are frankly considered and conclusions kindly and openly expressed. For the student and inquiring worker this attitude of heart and mind will find appreciative response and the absence of fruitless padding will banish tire of body and restlessness of soul.

The segregation of "General" from "Special Therapeutics" presents to the reader a clear-cut view without the endless repetitions so frequently encountered in many literary essays. In fact throughout the twenty-five chapters it would be difficult to observe either in the discussions of the various diseases or their treatment, an unwise or useless repetition.

In the treatment of "The Psycho-neuroses" the author has given of his eloquence and fine philosophy, viewpoints that may with interest, pleasure and profit be read by specialist and general practitioner. Of unusual value are the 103 illustrations of the volume—helpful to all, but of special interest to the young practitioner who is looking for help or a hint for some emergency.

The inclusion of sane and practical hints on diet will give the reader a composite view of treatment in a given case, because one can scarcely follow a diagnosis without a dual consideration of medicine and diet.

It is refreshing to discover that the author not only conforms to the United States Pharmacopoeia but almost excludes reference to the inexhaustable list of proprietary drugs.

Were I called upon to point out the evidence of the author's liberal views and right to lead, a simple quotation in the preface would suffice: "I have departed from my extremely conservative view about the use of artificial pneumothorax in tuberculosis and have rewritten the chapter to agree with more modern practice."

In brief the author has made every effort to produce a volume on "Methods of Treatment" that should find a prominent place amid the working tools of the medical man—a book—scientific, up to date, readable, helpful—a literary gem.

The reviewer has twice been called upon for the review. Our only excuse is that in exercising his right to read the volume he frequently forgot the review—he hopes the offense will be pardoned.

ROSHIER W. MILLER.

Syphilis, Gonorrhea and the Public Health. By NELS A. NELSON, B. S., M. D., F. A. P. H. A., Director, Division of Genitoinfectious Diseases, the Massachusetts Department of Public Health. And GLADYS L. CRAIN, R. N., Epidemiologist, Division of Genitoinfectious Diseases, the Massachusetts Department of Public Health. New York. The Macmillan Company. 1938. Octavo of xvii-359 pages. Cloth. Price, $3.00.

This is a new and arresting book on the genitoinfectious diseases. It is of value to any physician and especially to those treating syphilis and gonorrhea, along with private practice. It is also of interest to laymen who wish information and instruction on the subject treated in this book and written in language understandable to them.

The sequence of the subject matter is logical and excellent. It is divided into seven parts: I. Attitudes and Approach; II. The Genitoinfectious Diseases, III. The Statistics of Syphilis and Gonorrhea; IV. The Control of Syphilis and Gonorrhea; V. Costs; VI. Social Hygiene; and VII. The Scandinavian Example; Under these divisions is discussed the history, origin, symptoms, diagnosis, laboratory technique and treatment of each disease.

The style is easy and flowing, and the subject matter is presented in attractive form. It is excellent for reference and hard to lay aside when you start reading. Every physician will profit by owning a copy and it should be recommended to the public at large.

F. W. UPSHUR.

Virginia Medical Monthly

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Editorial

Yesterday, Today and Tomorrow.

The report of the Committee on the Cost of Medical Care in 1932 was a bombshell that loosed many medical and lay minds from their traditional moorings and set in motion currents and cross currents within and without the medical profession. The antecedent and concomitant activities of several philanthropic foundations in the interest of so-called better medical care of the American people were ascribed by some to a meddlsome spirit and a misguided zeal, by others to an admirable desire to do something about a long standing need. The massive two-tome report published in 1937 under the name of *American Medicine* received widespread recognition in the daily press and was followed by an avalanche of articles on all economic phases of medicine in most of the magazines of the country. Finally, a rift within the lute of professional harmony was detected by the public when the proposals of the "Committee of 430" were circulated by these self-constituted spokesmen of medicine.

How much all this discussion influenced the later interest of the government in the better medical care of the American people and how much in turn this discussion was aided and abetted by official benediction is uncertain. In any event history will record the following sequence of significant events: the passage of the Social Security Act (1935) with its provisions dealing with medical care; the appointment by the President (August 1935) of the Interdepartmental Committee under the Chairmanship of Miss Josephine Roche charged with expediting the benefits of the Act to the intended recipients; the National Health Survey made by the United States Public Health Service covering 800,000 families including 2,800,000 people; the report of the Techical Committee on Medicine; and finally the National Health Conference (July 18-20, 1938), a somewhat conglomerate group composed of persons representing labor, welfare organizations, government employees, radical newspapers, with a sprinkling of doctors and others connected with the actual supply of medical service. The proceedings and recommendations of this conference were published in the *Journal of the American Medical Association* (July 30, 1938) and constituted the agenda of the called meeting of the House of Delegates of the American Medical Association on September 16, 1938.

History will also record that the American Medical Association had been busy during this period of gathering storm, busy with a propaganda of opposition. From the start it adopted the tactics of defense. It had much to defend that was fine, and there was cheering from the ranks. But in its position there was something of the proverbial behavior of the pursued ostrich, and this attitude called forth mutterings and head shakings from the progressives. Retreat followed retreat until the House of Delegates

stood defiantly, like Roderick Dew, before a rock of ten inviolable principles. The mutterings having drowned out the cheering, the Association had a sudden change of heart and past history has been forgotten in the triumph of the present liberal and logical statement of a more tenable position on the part of organized medicine.

II.

When, at 10 A. M. on September 16, 1938, in Chicago, Dr. H. H. Shoulder's hickory gavel, supposed to endow the wielder with some of the attributes of the Old Tennessean Roughneck, smacked down on the speaker's desk, the third extraordinary session of the American Medical Association came to order. Delegates looked serious and agreed that it was the most important meeting the Association had ever called. (And yet it did not at any time make the front page of the newspapers.) It was serious because the Association had reached the Rubicon. Before it lay the five definite recommendations of the National Health Conference with the prospect of their principles being shortly drafted into law. To accept or not to accept these recommendations was the question. Committees and subcommittees were quickly organized to consider each of the five recommendations separately and to report back their own recommendations to the House. For hours the committees sat, heard individuals and representatives of medical organizations present their views, reached their own conclusions, framed them, incorporated them into a consolidated report of a Committee of Twenty-five and at the afternoon session of the second day the House of Delegates received and accepted a final and epochal report.

The report is published elsewhere in this issue of the MONTHLY. In general it may be said that with important exceptions it conforms closely to the recommendations of the National Health Conference. In substance the five sectioned report says:

I. We favor expansion of the Public Health and maternal and child welfare services, and the creation of a National Department of Health with a cabinet officer who is a medical man, but we urge that all expenditures be carried out on the advice and with the approval of local medical societies.

II. We favor the expansion of hospital facilities where the need for them can be demonstrated, believing that the chief deficiency is beds not buildings, and that this deficiency can be met largely by subsidizing existing institutions.

III. We favor better medical care of the indigent, believing that this medical care is the responsibility of the local communities and the professions now dedicated to the service of the sick, and that federal assistance is needed only when local measures fail. It is our belief that insufficient food, shelter and clothing bear a causative relation to sickness and that relief from these factors should antedate medical assistance.

IV. We favor hospital insurance and voluntary sickness insurance when not in conflict with the ethicial principles laid down by state and local medical societies. We disapprove of government subsidy or participation in insurance and favor no form of national compulsory health insurance.

V. We favor the principle of insurance against loss of wages during sickness.

It will be seen that the American Medical Association is still opposed to compulsory sickness insurance, and to lay and political control of medical affairs, that it still believes bad economics is more to blame for the indigent's poor health than is lack of medicine, and that it urges caution in the expenditure of public funds. The great advance in its point of view is in its willingness to work with the government and in its determination at last to accept responsibility in the expansion of medical services which have naturally evolved from our present social and economic revolution. On the final roll call on the report in the House of Delegates there was not a dissenting voice, and on these broad and liberal principles organized medicine now stand with a united front.

III.

What has been done amounts to very little compared to what still must be done. In general it may be said that the immediate objectives of the Association are definite:

I. In creating a Committee of Seven to cooperate with a similar group appointed by the government to work out plans for putting into effect its recommendations, the Association has not simply made a friendly gesture but has definitely gone on record as meaning to play ball. It is hoped that the Committee will not stand on its dignity. If necessary it must go to Berchtesgaden.

II. Indications are clear also that the representatives of organized medicine will have to make their voice heard in the next Congress for it is rumored one or two bills will be presented there to instrument

the recommendations of the National Health Conference.

III. The obligation resting upon the Association to continue its study of the many phases of the new socio-economic side of medicine is obvious. It must press its own lagging survey, it must continually analyze the results of the one thousand and one experimental plans now in operation, it must gather, sort out and interpret new data, and advise with, and counsel, component societies all over the country.

IV. Not the least difficult job before organized medicine will be the elaboration of the techniques by which it may safeguard one of its inviolable tenets: that medical men should control all funds, services and facilities of medicine. How state and local medical societies are to tell Federal, state and local health officers and other public officials how and when and where to expend the funds allocated to the various agencies concerned with public health is going to require a judicious admixture of diplomacy and brains.

V. The reinstatement of the medical profession in public esteem will depend not only on what organized medicine does in the future but also on what it says through its press and its spokesmen. Through our accomplishments and the record of these accomplishments in print we must give the lie to the damning impression now abroad that doctors as a whole are Bourbon in mind, reactionary in spirit and selfish at heart.

VI. Finally it is the will of the 110,000 doctors of the United States of America as represented in the House of Delegates of the American Medical Association that American medicine will no longer play the part of critic and passive bystander boasting past achievement and an inflexible ethical code, but that it will henceforth say to the government and its agents we are not going to see you do so much, we are determined to help you do no less.

Vitamin E.

The fat soluble antisterility vitamin which has proved useful in threatened abortion and sterility, and which occurs in wheat germ, cotton seed, palm and rice oils as well as in lettuce and whole grain cereals, has at last been chemically identified, synthesized in the laboratory and expressed in chemical formula. These important facts are announced in a recent issue of *Science* (July 8).

The new synthetic preparation is a white powder called alpha tocopherol. Fed to sterile female white rats, previously deprived of natural vitamin E, it promptly restored the normal faculty of producing healthy offspring. Alpha tocopherol appears to be identical with vitamin E. It is not to be confused with durohydroquinone which has been known for sometime to have an action like that of vitamin E. This most recent synthesis of another of the vitamins now increases the number which have been isolated in pure chemical form and synthesized, to five.

The allotment of one of the Round Table Discussions at the next meeting of the Medical Society of Virginia to the subject, Vitamins, will afford opportunity for the discussion of some of the newer knowledge concerning them. It would be well if the conservative attitude expressed in *New and Non-Official Remedies, 1938,* were adopted by this gathering, and if its discussions were limited to what this publication calls "allowable claims."

Proceedings of Societies

The Dickenson-Buchanan County Medical Society

Met at Grundy, August 17, with an attendance of about twenty members. After a luncheon at the hospital, the members were entertained with a moving picture presented by Dr. Turner. Dr. F. H. Smith, Abingdon, presented a paper on "Statesmanship in Medicine" which was discussed by several members.

Dr. E. V. Flamiglietti, Grundy, was admitted to membership in the Society.

The next meeting will be held at Grundy on September 14.

T. C. SUTHERLAND,
Secretary.

Elizabeth City County Medical Society.

At the July meeting of this Society, Dr. Harold W. Kinderman, Hampton, and Dr. Frank A. Kearney, Phoebus, were elected to membership.

On September 12, a joint meeting was held with

the Warwick Society to hear Mr. Robert Preston discuss the Pollution Control problem in the Hampton Roads area and passed a unanimous resolution endorsing the project.

The Society does not hold regular meetings as the entire membership is represented at the weekly staff meetings of the Dixie Hospital and at the monthly meetings of the Virginia Peninsula Academy of Medicine.

Dr. W. P. Smith, Hampton, is president, and Dr. Robert H. Wright, Jr., secretary, of the Elizabeth City Society.

Loudoun County Medical Society.

At the regular monthly meeting of this Society on August 9, the following officers were elected for the ensuing year: President, Dr. H. H. Green of Hillsboro; vice-presidents, Dr. G. H. Musgrave of Leesburg and Dr. W. H. Turner, Roundhill; and secretary-treasurer, Dr. F. T. Hauser of Purcellville.

Lynchburg Academy of Medicine.

The regular meeting of the Academy was held in the Elks' Club, September 12, at 8:00 P. M. Dr. J. W. Davis, Sr. presided in the absence of the President, Dr. Elisha Barksdale, and Vice-president, Dr. Sam Oglesby.

Mr. Raine Sydnor, Manager of the Lynchburg Hospitalization plan explained their program and solicited the members of the Academy as a group to subscribe.

The Secretary was instructed to inform the Department of Clinical and Medical Education of the Academy's desire to have courses in Internal Medicine presented to its members.

Dr. H. C. Brownley presented a very interesting and well-written paper on "Recent Ideas on Liver Function." Discussion was led by Drs. D. P. Scott, John Hundley, Jr., and D. P. Peters.

C. E. KEEFER, *Secretary.*

The Rockbridge County Medical Society

Was re-organized on September 13, having been dormant for some time, due to the death of the president, Dr. C. S. Groseclose, and no vice-president having been elected. Dr. F. L. Thurman of Buena Vista was chosen president, with Dr. Hugh Bailey of Brownsburg vice-president, and Dr. E. P. Tompkins of Lexington secretary-treasurer.

At this meeting Drs. A. L. Carson and L. L. Shamburger explained the workings of the pre-natal clinics established throughout the State, and answered many questions put by members. After full discussion it was deemed feasible to establish such a clinic in Rockbridge county, which is to be under the auspices of the Public Health department of the county. The necessary arrangements and details will be carried out by Dr. R. P. Cooke and the newly-appointed assistant Health Officer, Dr. S. J. Beeken. All general practitioners present indicated willingness to take turns in conducting these clinics.

Dr. Hugh Bailey was elected delegate to the State Society meeting in Danville, early in October, with Drs. H. L. Mitchell, and M. T. Vaden, as alternates.

It was voted to have monthly meetings of the society instead of at longer intervals which have heretofore been the rule.

E. P. TOMPKINS, *Secretary.*

The Southside Virginia Medical Association

Held its 139th quarterly meeting at Piedmont Sanatorium, Burkeville, on the afternoon of September 13, with a good attendance. An unusually interesting program was rendered, at the close of which the visiting doctors were entertained at a delightful dinner by Dr. Woodson and his staff.

The next meeting of the Southside will be held in Petersburg on the second Tuesday in December.

R. L. RAIFORD, *Secretary.*

Virginia Peninsula Academy of Medicine.

The first Fall meeting of the Academy was held at the James River Country Club, Newport News, on September 19. Dr. S. A. Cosgrove, clinical professor of Obstetrics at Columbia University, spoke on "The Toxemias of Late Pregnancy". This was discussed by Drs. C. J. Andrews, Norfolk, and H. Hudnall Ware and M. P. Rucker, Richmond.

Meetings are held on the third Monday of each month and Dr. Chevalier L. Jackson, Philadelphia, will be the speaker at the October meeting. Programs for the year will have the following guest speakers: Dr. Thomas Parran, Surgeon General of the U. S. Public Health Service; Dr. E. C. Drash, University of Virginia; Dr. John Royall Moore, Temple University; Dr. Henry Christian, Harvard Medical School; Dr. A. Graeme Mitchell, University of Cincinnati; Dr. E. H. Richardson, Johns Hopkins Medical School; and Dr. Vincent Archer, University of Virginia.

Dr. Edward B. Mewborne, Newport News, is secretary of the Academy.

News Notes

Danville Awaits You!

Programs were recently issued for the sixty-ninth annual meeting of the Medical Society of Virginia in Danville, and everything is in readiness for an excellent meeting. There will be scientific papers and round tables, scientific and commercial exhibits, and a subscription dinner with a floor show by New York talent. The business sessions will start on Tuesday —the Council at 11:00 a. m., and the House of Delegates at 2:00 p. m. The first general session will be on Tuesday evening at 8:00 p. m., with the scientific program proper on Wednesday and Thursday until lunch time. There will be plenty to interest and entertain you. Be sure to come!

Round Tables to Answer Questions about Which you are in Doubt.

Much interest is centering about the Round-Table discussions to be held on Wednesday afternoon. These present subjects of varied interest and should prove a popular feature. There will be a box at the Registration desk for receiving questions you may wish discussed at the Round Tables. Write off your questions before coming to the meeting, stating at the top of the slip at which Round Table you wish it discussed, and it will be handed the chairman of that group. This may be signed or unsigned as you prefer. Questions may also be received from the floor during the meetings, but questions presented in advance will insure you of hearing about matters in which you are most interested and will also be of great assistance to those in charge.

If members generally will make use of the Round Tables by asking questions as requested above, they should prove a kind of consultation service in regard to any puzzling case in your practice.

Luncheon Meetings in Danville.

Several group organizations have arranged for luncheon meetings in Danville at the time of the State Society meeting. Those of which the MONTHLY has been advised are to be at 1:00 p. m. at Hotel Danville and are as follows:

Pediatric Society luncheon in Danville Room
Obstetrical and Gynecological luncheon in North Room
Jefferson Hospital Interne luncheon in Room 803
Urological Society luncheon in Room 703
College of Physicians luncheon in Coffee Shoppe

In some cases, return cards have been sent members of the organizations listed above. Those who have not responded are requested to do so at once.

The Virginia Obstetrical and Gynecological Society

Will hold its annual meeting in the North Room of the Hotel Danville on Wednesday October 5 at 1:00 P. M. The guest speaker will be Dr. Louis H. Douglass, Professor of Obstetrics at the University of Maryland Medical School, whose subject will be "The Problem of the Posterior Occiput". Following the dinner and business session of the Society, all physicians attending the State Medical Society meeting are cordially invited to hear Dr. Douglass.

Testimonial Dinner to Dr. Stuart McGuire.

In appreciation of Dr. Stuart McGuire and his interest in and devotion to the Richmond Academy of Medicine, members of the Academy held an informal testimonial dinner in his honor, at the Commonwealth Club, September 27 at 7:30 o'clock. Many friends of Dr. McGuire, other than members of the Academy, attended.

Dr. A. I. Dodson, president of the Academy, called the meeting to order and then called upon Dr. J. Shelton Horsley, chairman of the committee, for a few remarks. Dr. Horsley presented the toastmaster for the evening, Dr. F. W. Boatwright, president of the University of Richmond, and life-long friend of Dr. McGuire, who conducted the rest of the proceedings, the main feature being an address by Dr. J. M. T. Finney, emeritus professor of surgery, Johns Hopkins School of Medicine, and longtime friend of Dr. McGuire. His talk and other sections of the program were broadcast by WRTD, beginning at 9:00 o'clock. Following Dr. Finney's address, Dr. Roshier W. Miller presented to the Academy on behalf of the donors a portrait of Dr. McGuire recently painted by Bjorn Egeli. Dr. Dodson accepted the painting for the Academy membership. The artist was then introduced, followed by a presentation of a portfolio of letters to Dr. McGuire. The meeting closed with an address by Dr. McGuire.

XUM

The Academy of Medicine committee in charge of the program consisted of Dr. J. Shelton Horsley, chairman, Dr. Roshier W. Miller and Dr. W. Lowndes Peple, Dr. Charles R. Robins, Dr. J. K. Hall, and Dr. M. Pierce Rucker.

The International Assembly of the Inter-State Postgraduate Medical Association of North America

Will be held in Philadelphia, October 31, November 1, 2, 3, 4, under the presidency of Dr. Elliott P. Joslin of Boston. The Benjamin Franklin will be hotel headquarters, but all scientific and clinical sessions will be in the Auditorium. About eighty distinguished teachers and clinicians will appear on the program. There will also be pre- and post-assembly clinics in Philadelphia hospitals on October 29 and November 5. All members of the medical profession in good standing in their State and Provincial Societies are invited to attend the Assembly, the registration fee for which is $5.00. Further information may be obtained from Dr. William B. Peck, Managing-Director, Freeport, Illinois.

Dr. C. M. Dobson,

Recently of Wisconsin, is now associated with Dr. Thomas Wheeldon of Richmond, in the practice of orthopedics. Dr. Dobson is a graduate of the Medical Department of the University of Wisconsin, after which he interned for two years in hospitals in California. Later he served a two-year residency at Shriner's Hospital for Crippled Children and was last year resident in orthopedics at Milwaukee County Hospital in Wauwatosa.

Dr. Clarkson Honored.

Dr. Wright Clarkson, Petersburg, was elected President of the American Association for the Study of Neoplastic Diseases at its meeting in Washington, September 8-10.

Dr. J. Shelton Horsley, Richmond, was chairman of the section on Lesions of the Breast and also presented a paper on Lesion of the Stomach. Dr. John S. Horsley, Jr., gave a paper on Tumors of the Male Breast, and Dr. Clarkson on Lesions of the Stomach and Colon.

The next meeting of the Association will be held in Detroit in April.

Changes in Faculty at University of Virginia.

Among changes in the faculty at the University of Virginia are noted the following: Dr. Andrew D. Hart appointed professor of clinical medicine and director of student health; and Dr. Prentice Kinser, Jr., promoted to assistant professor of orthopedic surgery.

Promotions in U. S. Public Health Service.

The following doctors, graduates of Virginia schools, have been promoted and commissioned as Passed Assistant Surgeons in the Regular Corps of the U. S. Public Health Service: Dr. John B. Hozier, New Martinsville, W. Va., class of 1933, University of Virginia, Department of Medicine; and Dr. Hugh L. C. Wilkerson, Hot Springs, Ark., class of 1933, Medical College of Virginia.

Duke University Presents Symposium.

As part of the Duke University Centennial Celebration a symposium on Medical Problems will be held on October 13, 14, and 15. The subjects for discussion are The Future of American Medicine and Diseases of Special Interest to Physicians in the Southern States. Speakers of prominence have been selected to lead these discussions.

The symposium is open to all physicians and persons in related fields of work. There are no registration fees or other charges. For information write to Committee on Medical Symposium, Box 3712, Duke Hospital, Durham, N. C.

Married.

Dr. Harry Justice Warthen, Jr., and Miss Martha Winston Alsop, both of Richmond, September 1.

Dr. Frederick Nimrod Thompson of Newport News and Miss Frances Willett Edwards of Miami, Fla., and Newport News, September 29.

Dr. Prosser Harrison Picot of Richmond and Miss Elmyra Davidson Williams of Wytheville, September 3.

Dr. Hugh Grigsby Whitehead, Jr., and Miss Natalie Contee Whiting, both of Baltimore, Md., September 24. Dr. Whitehead is an alumnus of the Medical School of the University of Virginia, class of '32.

Dr. Thomas Hamilton Hogshead of Staunton and Miss Catherine Louise Gierhart of Yonkers, N. Y., the latter part of September.

Dr. Charlton Gilmore Holland, Jr., of Danville and Miss Louise Fraser Beckwith of Petersburg, August 6.

Centenary of the Cellular Theory.

The scientific world celebrates this year the

centenary of the cellular theory which was founded by the German botanist—Mathias Jacob Schleiden and by the zoologist Theodor Schwann, a hundred years ago. To commemorate this event, which it is said has had the same far-reaching consequences as the theory of evolution, the Mexican Society of Natural History (Sociedad Mexicana de Historia Natural) resolved at their meeting, May 6, to publish a special volume which would contain papers relating to problems of the cellular theory and kindred subjects. All biologists interested in the cellular theory are invited to collaborate in the preparation of the volume. The paper, which according to the jury is the outstanding contribution, will be awarded the Schleiden-Schwann medal of the Mexican Society of Natural History. Every cytological paper is welcome, the final date for acceptance of these being January 31, 1939. Terms of the contest may be secured from the Sociedad Mexicana de Historia Natural, Apartado Postal 1079, Mexico, D. F.

Richmond Doctor Honored.

Dr. Warren T. Vaughan of Richmond has been twice honored in the past few months, having been named president of the Society for the Study of Asthma and Allied Conditions and more recently chosen as president-elect of the American Society for the Study of Allergy.

Dr. T. Allen Kirk

Of Roanoke was elected president of the American Rose Society at its annual convention in Hershey, Pa., the middle of September.

Dr. Louis Lovenstein,

Class of '35, Medical College of Virginia, has opened offices at 928 West Grace Street, Richmond, where he is engaged in the practice of internal medicine.

Dr. A. McClintic Byrd,

Formerly located in Virginia, but more recently of Northfork, W. Va., has moved to Bluefield, W. Va., with offices in the Coal and Coke Building. His practice is limited to rectal and genito-urinary diseases.

A Conference on Rural Medicine

Is to be held at The Mary Imogen Bassett Hospital, Cooperstown, N. Y., October 7 and 8. The program will be conducted in four parts, as follows: Rural Morbidity, Health Department Programs and School Health Programs in Rural Areas, Postgraduate Medical Education in Rural Areas, and Economics of Rural Medicine.

Dr. Alfred W. Norris,

Medical College of Virginia, class of '37, who recently completed an internship at the Passaic General Hospital, Passaic, N. J., has located at Jonesport, Maine, for general medical practice.

American College of Surgeons.

The annual Clinical Congress of the American College of Surgeons will be held in New York City, October 17-21. Those who wish further information about the Congress may secure it from headquarters at 40 East Erie Street, Chicago.

The Academy of Physical Medicine

Will hold its sessions in Washington, D. C., October 24, 25 and 26, with the cooperation of Government medical and scientific services. There will be reports of recent studies in Physical Medicine and related subjects, with demonstrations and clinics, by recognized authorities. The Willard will be hotel headquarters and the clinics will be held at the Walter Reed General and St. Elizabeth's Hospitals. Members of the medical profession and interested students are cordially invited. Dr. Herman A. Osgood, 144 Commonwealth Avenue, Boston, Mass., is secretary.

The New York Polyclinic Medical School and Hospital

Announces the opening of the Urological Department in its new clinic building. The medical profession is cordially invited to inspect this department, which is under the supervision of Drs. Joseph F. McCarthy, Daniel A. Sinclair, David Geiringer and Howard S. Jeck and their associates.

The International Congress (10th) of Military Medicine and Pharmacy

Will be held in Washington May 7 to 15, 1939. Invitations to participate have been sent to every country by the President of the United States and already acceptances have been received from several countries. A full scientific and social program has been arranged and will shortly be mailed to all the countries to which invitations were sent. A large registration is hoped for and every effort will be made by the Committee in charge to make the Congress an attractive one to those participating. Gen-

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eral Charles R. Reynolds, the Surgeon General of the United States Army, will be the President of the Congress. Registration, without fee, is open to all officers of the medical services of the Army, Navy, Air and Colonial services, National Guard, territorial forces and public health service, whether active or reserve.

Colonel Harold W. Jones of the Army Medical Corps is Secretary General. The Secretarial office is at the Army Medical Library, Washington, D. C.

Dr. Zdenka A. Hurianek,

Who was last year in charge of health work and resident physician to Mary Baldwin College at Staunton, has located in Alexandria for general practice, with offices at 115 North Columbus Street.

Offices Moved.

The following Richmond doctors announce removal of their offices:

Dr. James P. Baker, Jr., to 805 West Franklin Street; and

Dr. William Bickers to Medical Arts Building.

A Symposium on Mental Health.

Plans are being made for a Symposium on Mental Health to be presented before the Section on Medical Sciences of the American Association for the Advancement of Science, to be held in Richmond, December 28-30. This will be under the leadership of Dr. Walter L. Treadway, Assistant Surgeon-General of the Public Health Service in charge of mental-hygiene activities. The committee consists of eminent psychiatrists who are being assisted by the American Psychiatric Association, the U. S. Public Health Service, the Mental Hospital Survey Committee, and the National Committee for Mental Hygiene.

This will be the first time in the history of American psychiatry and the mental-hygiene movement that the subject of mental health has received the special attention of this great scientific body as a major topic on its agenda. The American Association for the Advancement of Science is the largest scientific body in the United States, having an active membership of over 19,000, and an affiliate membership of about 750,000.

The plan for the Symposium on Mental Health contemplates the holding of six sectional sections over a three-day period. Papers prepared for this Symposium will be published in advance and used as a basis for the discussions. There will be an opportunity for general, open discussion at each session.

Communications should be addressed to Symposium on Mental Health, American Association for the Advancement of Science, Room 822, 50 West 50th St., New York City.

The National Society for the Prevention of Blindness

Has issued a public call for (1) information concerning new industrial or occupational eye hazards—both accident and disease hazards; (2) recent and significant statistics concerning any occupational hazards to sight—showing frequency, severity, causes, nature of injury, degree of impairment, cost, etc.; (3) photographs showing either hazards to sight or protection against such hazards and; (4) most important of all—information concerning successful methods of eliminating, counteracting or alleviating the disease and accident hazards to eyes. This information is desired for consideration in the revision of "Eye Hazards in Industrial Occupations".

Announcement has also been that *The Journal of Social Ophthalmology*, a quarterly publication, is now being issued by the International Association for Prevention of Blindness. This is for the purpose of facilitating the exchange of information throughout the world in the organized campaign for the prevention of blindness and the conservation of vision. Articles appear in both English and French.

Offices for the National Society are located at 50 West 50th Street, New York City.

The New York Academy of Medicine

Extends a welcome to all members of the medical profession to attend its 1938 Graduate Fortnight, October 24 to November 4. The purpose of the Fortnight is to make a complete study and authoritative presentation of a subject of outstanding importance in the practice of medicine and surgery—Diseases of the Blood and Blood-Forming Organs. The program includes addresses by recognized authorities in their special fields, and twenty-three hospitals have prepared afternoon clinics and clinical demonstrations.

The registration fee of $3.00 admits to all features of the Fortnight. A program and registration blank may be secured from Dr. Mahlon Ashford, The New York Academy of Medicine, 2 East 103rd Street, New York.

The American Social Hygiene Association

Announces plans for an extended program of education in syphilis control and social hygiene to reach ultimately 35,000,000 young men and women throughout the nation. These activities, made possible by an anonymous gift of $25,000, will get under way by October 1. In addition to bringing knowledge of the venereal diseases before youth, it will provide biological information and guidance in preparing young men and women for stronger and more enduring marriage and family relations.

Hopewell Doctors Take Part in Civic Work.

Dr. D. Lane Elder, Mayor of Hopewell since 1920 with exception of one term, was recently re-elected to this office at a reorganization meeting of the City Council. At this time, Dr. S. B. Perry also became a member of the city governing body.

The American Board of Obstetrics and Gynecology, Inc.,

Will hold its next examinations (written and review of case histories) for Group B candidates in various cities of the United States and Canada on Saturday, November 5, 1938, at 2:00 P. M., and on Saturday, February 4, 1939. Application for admission to the written examination scheduled for February 4, 1939, must be filed on an official application form in the office of the Secretary at least sixty days prior to this date (or before December 4, 1938).

The general oral, clinical and pathological examinations for all candidates (Groups A and B) will be conducted by the entire Board, meeting in St. Louis, Mo., on May 15 and 16, immediately prior to the annual meeting of the American Medical Association in June, 1939. Application for admission to Group A examinations must be on file in the Secretary's Office before April 1, 1939.

For further information and application blanks, address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6) Pa.

Dr. Hugh O. Staley,

Recently at Splashdam, is locating at Richlands, October 1, where he will be connected with the staff of the Mattie Williams Hospital.

New Books.

The following are recent acquisitions to the Library of the Medical College of Virginia and are available to our readers, the only cost being return postage:

Aconite monograph.
Aristotle—Parts of animals, movement of animals, progression of animals.
Buxton, P. A.—Fleas as a menace to man and domestic animals.
Byrne, J. G.—Studies on the physiology of the middle ear.
Caius, J.—A boke or counseill against the disease commonly called the sweate.
Carrel & Lindbergh—Culture of organs.
Carter, J. B.—Fundamentals of electrocardiographic interpretation.
Cathcart & Murray—A dietary survey in terms of the actual foodstuffs consumed.
Clendening, L.—Methods in medicine.
Cole, H. A.—Experiments in the breeding of oysters.
Davis, L.—J. B. Murphy, stormy petrel of surgery.
Elyot, T.—Castel of helth.
Espe, D.—Secretion of milk.
Ewing, A. W. G.—The use of hearing aids.
Feigl, F.—Qualitative analysis by spot tests.
Fenton, C. L.—Our amazing earth.
Fishbein, M.—Medical writing, the technique and art.
Friedenwald, J. S.—Pathology of the eye.
Fulton, J. F.—The physiology of the nervous system.
Galtsoff, P. S.—Culture methods for invertebrate animals.
Gregory—A B C of vitamins.
Hardy, J. A.—Abdominal surgery.
Harrison, G. A.—Chemical methods in clinical medicine.
Hegner, R.—Parasitology.
Henderson, Y.—Adventures in respiration.
Hertzler, A. E.—The horse and buggy doctor.
Horrall, O. H.—Bile, its toxicity and relation to disease.
Hutton, L.—The single woman and her emotional problems.
Industrial Health Research Bd.—Toxicity of industrial organic solvents.

Location for Young Physician.

Request has been received for a young physician to locate at Bacon's Castle, Surry County, Virginia. For further information, write C. M. Pitman, Bacon's Castle, Va. (*Adv.*)

Home for Convalescences.

A home for the care and treatment of chronic aged and convalescences has been opened at Arrington, Nelson County, Virginia, under the direction of Dr. and Mrs. Fred M. Horsley. Information upon request. (*Adv.*)

Aid in Medical Research.

Physician having access to a complete Medical Library offers his services to authors or others in locating references, or for medical research of any kind. Reasonable fee. Address "No. 38", care this journal. (*Adv.*)

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Home and School for "Exception" Children.

The Thompson Homestead School, located at Free Union, near Charlottesville, is especially adapted for the shy, nervous, retarded or unsocial child. Enrollment limited. For detailed information, write Mrs. J. Bascom Thompson, Principal, Free Union, Va. (*Adv.*)

Wanted—

Physician for general medical work in the West Virginia Coal Field. Please give full particulars in first letter. Mail answer to P. O. Box 109, McAlpin, W. Va.

Obituary Record

Dr. Hugh Holmes McGuire,

Prominent physician of Alexandria, died September 8, after a short illness. He was a son of the late Dr. Hunter Holmes and Mrs. Mary Stuart McGuire and was born in Richmond sixty-seven years ago. He graduated from the former University College of Medicine, Richmond, in 1894, and following his internship, located in Alexandria, where he had since made his home and practiced. Dr. McGuire had been a member of the Medical Society of Virginia for forty-four years, and was a fellow of the American Medical and various other organizations. A son, Dr. Johnson McGuire, two brothers, Drs. Stuart McGuire and Hunter H. McGuire, and five sisters survive him, his wife having died several months ago.

Dr. William Beckwith Fuqua,

Prominent Southwestern Virginia physician, died at his home in Radford, August 18, from cerebral hemorrhage. Although he had been in declining health for the past year, he attended his duties during this time and made a call the evening prior to his death. He was born in Fluvanna County, October 9, 1873, and was graduated from the University College of Medicine, Richmond, in 1897. Dr. Fuqua had been in practice in Radford since 1900 and was Chief Surgeon for the Lynchburg Foundry Company for thirty-eight years. He was City Coroner for twenty-five years, a member of the Norfolk and Western Railroad Company Staff, and formerly surgeon for the Glamorgan Company, Virginia Iron, Coal and Coke Company and for the Meade Corporation. Dr. Fuqua was a member of the Southwestern Virginia Medical Society, Medical Society of Virginia, fellow of the American Medical Association, and was a Mason. He is survived by his wife and two children J. K.

Dr. Isaac Eldridge Huff,

For many years a well-known physician of Roanoke, died on August 17, death being due to pneumonia. Dr. Huff was a native of Floyd County and was seventy-two years of age. His medical education was received at the former College of Physicians and Surgeons of Baltimore, from which he graduated in 1892. For a time he practiced in Floyd County and was a member of that county board of health. He had been a member of the Medical Society of Virginia for over forty years. His wife, a daughter, and two sons, one of them Dr. W. Banks Huff of Roanoke, survive him.

The Great Physician having seen fit to remove from our midst our beloved fellow Physician, Doctor I. E. Huff, we, the members of The Roanoke Academy of Medicine, bow in humble submission to the Divine Will, and extend to the family and friends of Doctor Huff our sincere sympathy in this bereavement.

We wish further to bear the testimony to the sterling worth of Doctor Huff to the profession, and his unfailing kindness and attention to all who suffered.

Signed:

G. M. MAXWELL,
F. A. FARMER,
GEORGE S. HURT,
Committee.

Dr. William Meredith,

Prominent physician of Hanover County, died at his home "Canterbury", September 9, at the age of seventy-three. He graduated from the Medical College of Virginia in 1886 and had practiced in Hanover County for more than forty years, during which time he took an active part in county affairs. Dr. Meredith was for a number of years a member of the Medical Society of Virginia. His wife and seven children survive him.

Dr. Nathaniel D. Morton,

Richmond, died September 10, after a long illness. He was fifty-eight years of age and a graduate of the former University College of Medicine, Richmond, in 1909. Dr. Morton had practiced in Richmond for the past sixteen years, and was for sometime a member of the Medical Society of Virginia. His wife and two children survive him.